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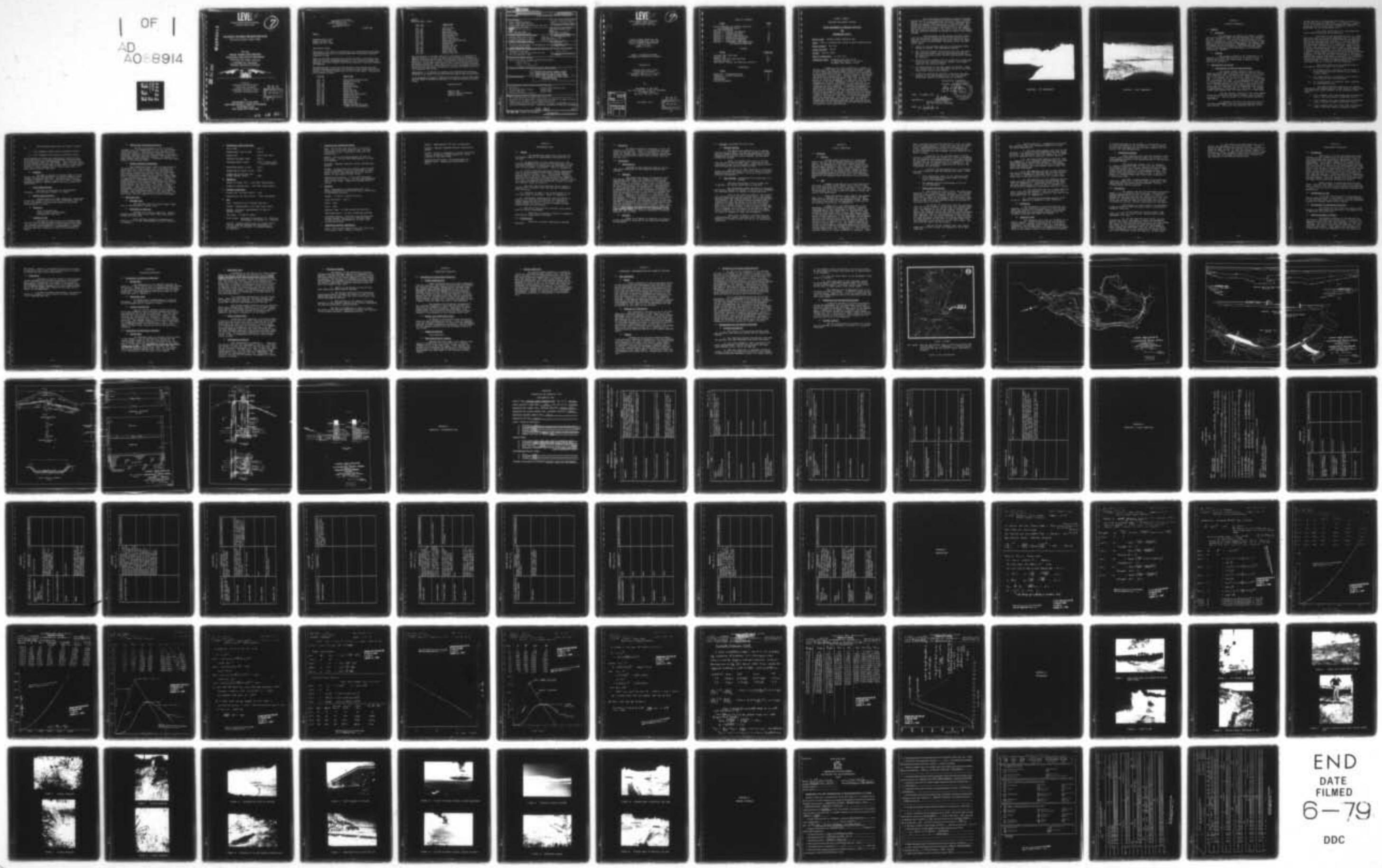

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LEVEL II

UPPER HUDSON RIVER WATERSHED
JACKSON CREEK BASIN

JACKSON SUMMIT RESERVOIR DAM

FULTON COUNTY, NEW YORK

NY 153
PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED

CONTRACT NO. DACW 51-78-C-0035

Prepared by
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CONSULTING ENGINEERS
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CALDWELL, NEW JERSEY 07006

For

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, NEW YORK
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

2 OCT 1978

NANEN-F

Honorable Hugh L. Carey
Governor of New York
Albany, New York 12224

Dear Governor Carey:

The purpose of this letter is to inform you of a clarification of the guidelines used by this office in assessing dams under the National Program of Inspection of Dams.

Office of the Chief of Engineers has recently provided a clarification that dams with seriously inadequate spillways are to be assessed as unsafe, non-emergency, until more detailed studies prove otherwise or corrective measures are completed.

The following dams in your state have previously been assessed as having seriously inadequate spillways, with capability to pass safely only the percentage of the probable maximum flood as noted in each report. They are now to be assessed as unsafe:

I.D. NO.	NAME OF DAM
N.Y. 59	Lower Warwick Reservoir Dam
N.Y. 4	Salisbury Mills Dam
N.Y. 45	Amawalk Dam
N.Y. 418	Jamesville Dam
N.Y. 685	Colliersville Dam
N.Y. 6	Delta Dam
N.Y. 421	Oneida City Dam
N.Y. 39	Croton Falls Dam
N.Y. 509	Chadwick Dam (Plattenkill)
N.Y. 66	Boyds Corner Dam
N.Y. 397	Cranberry Lake Dam
N.Y. 708	Seneca Falls Dam
N.Y. 332	Lake Sebago Dam
N.Y. 338	Indian Brook Dam
N.Y. 33	Lower(S) Wiccopee Dam (Lower Hudson W.S. for Peekskill)

NANEN-F
Honorable Hugh L. Carey

I.D. NO.	NAME OF DAM
N.Y. 49	Pocantico Dam
N.Y. 445	Attica Dam
N.Y. 658	Cork Center Dam
N.Y. 153	Jackson Creek Dam
N.Y. 172	Lake Algonquin Dam
N.Y. 318	Sixth Lake Dam
N.Y. 13	Butlet Storage Dam
N.Y. 90	Putnam Lake (Bog Brook Dam)
N.Y. 166	Pecks Lake Dam
N.Y. 674	Bradford Dam
N.Y. 75	Sturgeon Pool Dam
N.Y. 414	Skaneateles Dam
N.Y. 155	Indian Lake Dam
N.Y. 472	Newton Falls Dam
N.Y. 362	Buckhorn Lake Dam

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean, however, that based on an initial screening, and preliminary computations, there appears to be a serious deficiency in spillway capacity so that if a severe storm were to occur, overtopping and failure of the dam would take place, significantly increasing the hazard to loss of life downstream from the dam.

Consequently, it is advisable to implement the recommendations previously furnished in the reports for the above-mentioned dams as soon as practicable.

It is requested that owners of these dams be furnished a copy of this letter and that copies be permanently appended to all reports previously furnished to you.

Sincerely yours,

CLARK H. BENN
Colonel, Corps of Engineers
District Engineer

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Fulton County
Jackson Creek

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.
Jackson Summit Reservoir Dam was judged to be unsafe, non-emergency due to a seriously inadequate spillway. Additional maintenance actions were recommended.

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LEVEL II

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UPPER HUDSON RIVER WATERSHED
JACKSON CREEK BASIN
FULTON COUNTY, NEW YORK

JACKSON SUMMIT RESERVOIR DAM

CITY OF GLOVERSVILLE, NEW YORK
BOARD OF WATER COMMISSIONERS
NDS # NY 153
NYSDEC # 172-976

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

Prepared by

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For

DEPARTMENT OF THE ARMY
New York District, Corps of Engineers
26 Federal Plaza
New York, New York 10007

30 August 1978

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PHASE I REPORT

NATIONAL DAM SAFETY PROGRAM

BRIEF ASSESSMENT OF GENERAL CONDITION

AND

RECOMMENDED ACTION

Name of Dam: Jackson Summit Reservoir Dam

Owner: City of Gloversville; Board of Water Commissioners

State Located: New York

County Located: Fulton

Stream: Jackson Creek

Date of Inspection: 21 July 1978

Inspection Team: Converse Ward Davis Dixon
91 Roseland Avenue, P. O. Box 91
Caldwell, New Jersey 07006

Based on our visual inspection, a review of limited available data, and calculations performed as part of this study, the Jackson Summit Reservoir Dam is judged to be in acceptable condition structurally and functioning satisfactorily at this time. However, based on the screening guidelines established by the Department of the Army, Office of the Chief of Engineers (OCE), the spillway capacity is rated as inadequate. In addition, the spillway capacity is seriously inadequate (without the use of flashboards) since it satisfies all the conditions established by the OCE guidelines for determining seriously inadequate spillway capacity. Since this assessment was based on OCE screening criteria, a detailed hydrologic and hydraulic evaluation of the watershed and spillway should be performed by the use of more precise and sophisticated methods and procedures. Following such an investigation, the need for, and type of, mitigating measures should be determined. Until such a study is completed and the spillway adequacy issue resolved, the use of flashboards should be discontinued, and around-the-clock surveillance of the dam should be provided during periods of unusually heavy precipitation.

The occurrence of extensive amounts of seepage beyond the toe of the embankment warrants further investigation. It is recommended that the nature, strength properties and seepage characteristics of the embankment and foundation materials be established through a soil exploratory and testing program. The stability of the embankment may then be analyzed in the light of the new findings, and any necessary measures to reduce or control flow established.

Our assessment of the general physical condition of the Jackson Summit Reservoir Dam has led us to make the following recommendations which should be implemented as soon as practicable, certainly within the next three years:

1. Joints in the spillway approach and discharge slabs should be sealed, with vegetation removed.

2. The junctions between the spillway sill and the adjacent concrete slabs, and the deteriorated areas of all other concrete and/or masonry appurtenances should be repaired.

3. The gate house basement and its access way to the pipe inlet control valves should be lighted, the ladder repaired, and railings added.

4. Low woody growth on the dam should be removed. Shallow rooted trees on the embankment should be cut down; deep rooted trees should remain.

5. A specific program for periodic inspection and maintenance of the dam embamkment and its appurtenant structures should be established and followed.

Respectfully submitted,

CONVERSE WARD DAVIS DIXON

Gary S. Salzman, P.E.

LICENSED PROFESSIONAL ENGINEER GARY S. SALZMAN No. 40046 UNIVERSITY STATE OF NEW YORK

Date: 30 August 1978

Approved by:
Colonel Clark H. Benn
New York District Engineer

Date: 27 September 78

OVERVIEW - LEFT EMBANKMENT

OVERVIEW - RIGHT EMBANKMENT

SECTION I

PROJECT INFORMATION

1.1 General

a. Authority

The authority to conduct this Phase I inspection and evaluation comes from the National Dam Inspection Act (P.L. 92-367) of 1972 in which the Secretary of the Army was authorized to initiate, through the Corps of Engineers, a program of safety inspections of non-federal dams throughout the United States. Management and execution of the program within the State of New York has been undertaken by the New York State Department of Environmental Conservation (NYSDEC).

b. Purpose

The primary purpose of the inspection is to evaluate available data and to give an opinion as to whether the subject dam constitutes a hazard to human life and/or property.

1.2 Description of Project

a. Description of Dam and Appurtenances

The Jackson Summit Reservoir Dam is also known as Jackson Summit Storage Reservoir Dam and Jackson Creek Reservoir Dam. Throughout this report, we will refer to the subject dam as the Jackson Summit Reservoir Dam. It was built in 1934 and is an earth fill structure with a concrete core wall. It is approximately 1,400 feet in length along its crest and approximately 23 feet high at its deepest section (27 feet high if scaled from Plate III). The upstream face has an approximate slope of 2½ horizontal to 1 vertical, and the downstream face slopes at approximately 2 horizontal to 1 vertical. An unpaved access road extends over the crest which is 15 feet wide.

The dam actually consists of two earth embankments with naturally high ground between them, as shown on Plate III. The end product is a continuous-appearing embankment.

A concrete core wall runs along the axis of the earth embankment (but not below the central natural high ground). The top of the concrete core wall is 15

inches wide and is located one foot below the crest of the dam and along its centerline. It tapers at 1 horizontal to 30 vertical on both its upstream and downstream sides and is of variable height (Plates III and IV). It penetrates as low as elevation +1274.

The outlet works consist of reinforced concrete overflow spillway and gated pipes.

The crest of the overflow spillway is 5 feet below the crest of the earth embankment and 7.5 feet below the top of the wing walls on either side of the spillway. The 50-foot long spillway consists of a 20-foot approach ramp on the upstream side with a slope of 1 vertical to 14 horizontal, leading up to a 2-foot wide drop overflow section, with the water falling two feet. There is next a 25-foot downstream apron with a slope of approximately 1 vertical to 5 horizontal. This then continues across a grouted riprap channel which joins the spillway discharge channel. The spillway discharge channel is 25 feet perpendicular to flow at the base, and is made up of grouted riprap with sloping side walls (1 vertical to 1 horizontal). The channel extends from the base of the spillway to a natural stream, a distance of approximately 200 feet, on a minimum slope of 9 vertical to 110 horizontal.

The inlet portals on the upstream side of the dam are shown on Plate V as follows:

i. 8" intake portal at elevation 1295.0 within a stone masonry pier and covered on all sides by a brass screen.

ii. 20" intake portal at elevation 1290.0 within a stone masonry pier and uncovered.

iii. 20" intake portal at elevation 1288.5 adjacent to stone masonry pier.

The design drawings filed with the initial Application for Construction of a Dam (Plate V) shows that the controlled intake consists of the following valved pipes:

i. An 8" diameter cast iron intake pipe at elevation 1285.0, with the intake at elevation 1295.0.

ii. A 20" diameter cast iron intake pipe at elevation 1282.0, with the intake at elevation 1290.0.

iii. A 20" diameter cast iron "mud" pipe at elevation 1282.0, with the intake at elevation 1288.5.

The discharge pipes shown by Plate V consist of:

i. A 20" diameter outlet pipe at elevation 1282.0.

ii. A 20" diameter "mud" pipe at elevation 1282.0.

Flows through all pipes are controlled by valves in the gate house, which is located approximately 690 feet right of the spillway along the embankment. The valves are controlled manually from the gate house. There are gate valves on each of the 20" pipe lines, a gate valve to allow water from the 8" pipe to enter the 20" outlet pipe, and a 4" gate valve on the 20" mud pipe.

b. Location

The dam is located on Jackson Creek in Fulton County, New York approximately 2.5 miles northwest of the Village of Mayfield, New York. The location of the dam is shown on Plate I which is a portion of USGS 7.5 minute Quadrangle sheet of Jackson Summit, New York, N43°07'30", W74° 15'00".

c. Size Classification

The dam is classified as "intermediate" (storage = 1079 acre-feet; height = 23 feet).

d. Hazard Classification

Because there are homes immediately downstream of the dam, beyond which is the City of Mayfield, part of which is situated in flood-prone property, the hazard classification is "high."

e. Ownership

City of Gloversville
Board of Water Commissioners
Gloversville, New York

f. Purpose of Dam

The dam was built to act as a storage reservoir for the Gloversville Water Works water supply system. Its watershed is approximately 5 square miles. The pond area at spillcrest elevation is approximately 90 acres, and the pond has a capacity of about 1079 acre-feet of water.

g. Design and Construction History

The dam was designed in 1933 by Morrell Vrooman, P.E., and constructed in 1934 for the Gloversville Water Works. There are no other records of any additional design or construction; however, visual observation indicated that the concrete/masonry appurtenant structures had been repaired recently. No details of these repairs were available. Flashboards have also been added at the spillway crest.

h. Normal Operating Procedures

The system-wide water levels are maintained by the Department of Water Works, City of Gloversville. There are a full time caretaker and an assistant who check water levels daily, monitor the flow downstream, and visually inspect the dam from time to time. The normal operating procedure for the Jackson Summit Reservoir is to maintain a flow downstream. (A minimum flow is required by a downstream municipality.) This is accomplished by controlling the discharge from Jackson Summit Reservoir into Jackson Creek through the 20-inch discharge pipe and the 20-inch "mud" pipe. Prior to spring runoff, the water level is lowered to accept heavy flows. After the spring runoff, up to 2 feet of flashboards are placed over the spillway to increase storage. The flashboards remain in use until the pool elevation drops below the spillway crest elevation. At this point, they are removed for the rest of the year.

1.3 Pertinent Data

a. Drainage Area

The drainage area for Jackson Summit Reservoir is approximately 5 square miles.

b. Discharge at Dam Site

Maximum known flood at dam site: Unknown. Probably greater than 2 feet since 2-foot high flashboards have been used.

Total spillway capacity at maximum pool elevation (top of dam) approximately 2385 cfs (Spillway is ungated).

c. Elevations (feet above MSL)

Top of dam	1311.2
Maximum pool (top of dam)	1311.2
Normal pool	1306.2 and lower
Overflow spillway crest	1306.2
Upstream portal invert	1282.0 (inlets 1295, 1290 and 1288.5)
Downstream portal invert	1282.0
Stream bed at portal outlet	1280±
Stream bed at spillway discharge channel outlet	1280±

d. Reservoir

Length of normal pool: 4130 feet (approximate)

Length of maximum pool: 4700 feet (approximate)

e. Storage (acre-feet)

Normal pool (at elev 1306.2): 1079

Maximum pool (at elev 1311.2): 1550 (estimated)

f. Dam

Type: Earthfill with concrete core wall.

Length: Approximately 1,400 feet along crest.

Height: Variable; approximately 23 feet at deepest section.

Top width: 15 feet at crest.

Side slopes: Upstream 2½ horizontal to 1 vertical.
Downstream 2 horizontal to 1 vertical.

Cutoff: Concrete cutoff wall, 15 inches wide at top and tapering upstream and downstream at 1 horizontal to 30 vertical, to variable depths as required.

g. Diversion and Regulating Works

Type: One 8-inch cast iron pipe at elevation 1285.0 and one 20-inch diameter cast iron pipe at elevation 1282.0 (entries at 1295 and 1290, respectively).

Length: 8-inch pipe approximately 85 feet (to gate house). 20-inch pipe approximately 200 feet to discharge.

Closures: Manually operated valves; manufacturer unknown.

Access: In gate house are located wheels mounted on valve standards, which are connected to valve stems, which in turn operate the valves approximately 30 feet below the gate house.

Regulating Facilities: 8-inch pipe discharges into 20-inch outlet pipe. 20-inch pipe discharges into Jackson Creek. Regulation accomplished by valves.

h. Spillway

Type: Approaching a broad crested weir with sloping upstream and downstream faces, constructed of reinforced concrete.

Length: 50 feet at overflow section.

Crest elevation: 1306.2.

Gates: None.

Piers: None.

Approach ramp: 20 feet reinforced concrete.

Downstream apron: 25 feet reinforced concrete.

Discharge channel: 200±-foot long spillway discharge channel, constructed of grouted riprap 25 feet at base (perpendicular to flow) with sloping side walls.

i. Regulating Outlets (emergency)

Type: One 20-inch diameter cast iron "mud" pipe at elevation 1282.0 (entry at 1288.5).

Length: Approximately 200 feet to discharge.

Closure: Manually operated valves; manufacturer unknown.

Access: Valve is connected to 30-foot valve stem which is turned by a wheel mounted on a valve standard in the gate house.

Regulating facilities: Pipe discharges into Jackson Creek. Regulation accomplished by valve.

SECTION 2

ENGINEERING DATA

2.1 Design

The engineering design data available for the subject dam and its appurtenant structures are as follows:

a. An application for the construction of a dam dated 26 September 1933 filed with the Department of Public Works, Division of Engineering for the State of New York, giving general information. Refer to Appendix E.

b. A set of drawings entitled "Jackson Creek Reservoir for the Gloversville Water Works" dated September 1933 by Morrell Vrooman, P.E. The drawings contain a general plan of the site (Refer to Plate II), a general plan and cross section of the dam and spillway (Refer to Plate III), a plan showing spillway details (Refer to Plate IV), and a plan showing the gate house, intake, and core wall details (Refer to Plate V).

c. New York State Dam Inspection Report dated 23 October 1969, indicating that the dam was in generally good condition.

d. Inventory of Dams in the United States by the U.S. Army Corps of Engineers. Refer to Appendix E.

e. Information regarding pool area and reservoir capacity as a function of elevation was obtained by visual inspection and from the U.S.G.S. Quad Map of Jackson Summit, New York, in order to compute volumes using average end area methods.

f. Geological features were obtained using stereo pairs of aerial photographs.

There are no structural design or hydraulic/hydrological computations available.

2.2 Construction

There are no formal construction records available.

2.3 Operation

No formal records of operation or flow discharges are available. There is no recording instrumentation at the dam site. Flow is regulated by the caretaker, Mr. Donald Cast, according to demands imposed upon the City of Gloversville water supply system (See also Article 1.2h).

2.4 Evaluation

a. Availability

Engineering data were provided by the New York State Department of Environmental Conservation (NYSDEC).

b. Adequacy

The nature and amount of engineering data are limited, especially with regard to stability and seepage analyses. There are no stability or seepage computations. In addition, there is only limited information regarding the material from which the embankment was made, its strength and permeability characteristics, or the procedures used in construction. Consequently, no meaningful analyses could be performed to evaluate the stability of the structure or the amount of seepage that could be expected to occur through it (considering the core wall). There are no hydraulic or hydrologic data. The overall assessment, therefore, is based on the following factors: 1) visual observations made on the day of the inspection, 2) that the embankment seems to have been designed in accordance with conventional engineering practice for the design of small earthfill dams, and 3) the analyses performed using hydrologic modelling data available in Upper Hudson and Mohawk River Basins Hydrologic Flood Routing Models prepared for the Department of the Army, New York District, Corps of Engineers by Resource Analysis, Inc. in 1976.

c. Validity

There is no reason to question the validity of the information contained on the available drawings and documents.

2.5 <u>Geology</u> (performed for this study)

a. <u>General Geology</u>

The damsite and reservoir lie in eastern central Fulton County. The dam and reservoir are very near the contact between the hornblende granite, hornblende-biotite granitic gneiss complex, and the metasedimentary complex.

There is a normal fault east of the dam, with the dam on the upthrown side. According to the literature, there is an inferred linement running north-south through the dam and reservoir site.

The region has been subjected to glaciation during the Wisconsin stage, and a thin veneer of glacial deposits mantles the bedrock. The site is part of the glaciated Adirondacks.

b. <u>Site Geology</u> (interpreted from stereo-pair air photos)

The west lake slope is fairly steep and, in general, the ground slopes down to the east.

The downstream channel meanders on terraces. The photos indicate the channel is wet and well vegetated. The upstream channel is similar in shape and cover.

Rock is very near the surface. The literature indicates that the lake and dam are on the contact between hornblende granite (gneiss?) and the metasedimentary complex. The literature further suggests that a linement runs down the center of the lake and dam and joins with a normal fault east and south of the dam. There is a linement visible on the air photos where the fault should be (2,800 feet ± south and east of the dam) but no linement down the center of the dam was noted. Visual inspection in the field also failed to disclose any signs of linement or fault at the damsite.

There were no geologic features detected (stratification, faults, cavities, etc.) that could be expected to adversely affect the dam or its appurtenant structures.

SECTION 3

VISUAL INSPECTION

3.1 Findings

a. General

Jackson Summit Reservoir is a controlled outflow facility fed by Cameron Reservoir and Elphee Creek. Its function is to provide potable water for the City of Gloversville, New York. The discharge from Jackson Summit Reservoir flows into Dixon Intake, below which is Mayfield Lake. Jackson Summit Reservoir was the only component of the water supply system inspected, and it appeared to be in generally good condition and functioning satisfactorily on the day of the inspection, except for the seepage noted downstream from the earthen dam.

b. Dam

Access to the dam is via a short section of dirt road off paved Jackson Summit Road, and continues as a dirt road along the crest of the dam (Fig. 1, Appendix D) to provide access to the gate house. The town road is maintained, and in the winter is plowed by either the town or the Water Board.

There are several large trees on the embankment (Fig. 2, Appendix D), with woody growth and small trees on both the upstream and downstream faces. There is a heavy tree growth on the embankment to the left of the spillway (top of Fig. 3, Appendix D).

Inspection of the downstream face of the embankment revealed no evidence of seepage. However, approximately 50 feet downstream of the embankment toe, a seepage channel was noted (Fig. 4, Appendix D) which carried a clear steady flow of water into Jackson Creek. It was observed that the ground was swampy from approximately 50 feet downstream of the embankment toe to beyond the dirt road starting about 100 feet left of the gate house and continuing along almost the entire length of the dam (Fig. 5, Appendix D). All seepage observed occurred in virgin soil. A boil was noted at the outlet of the 16-inch diameter corrugated galvanized iron pipe culvert which allows the seepage runoff to pass under the Jackson Summit Road (Fig. 6, Appendix D). The soil was agitated creating a cloudy suspension of material. After

about 5 minutes the water was observed to still be cloudy, but after approximately 1½ hours the water was once again clear. Seepage emergence (clear) was observed at many points downstream of the toe (Figs. 7-10, Appendix D). We were informed that this seepage had been occurring for about 20 years.

Inspection of the upstream face of the embankment revealed that the riprap (6-9 inches in diameter) was in generally good condition except for a small section 50 feet right of the spillway which was cleared of riprap, possibly for use as a beach (Fig. 11, Appendix D). In some areas, soil supporting vegetation was noted in the interstices of the riprap.

Although the dam appeared to be in functionally good condition, some deficiences were noted. These include:

1. Woody vegetative growth on the upstream slope of the embankment and wooded areas on either side of the embankment.

2. The seepage occurring downstream of the toe of the embankment.

c. <u>Appurtenent Structures</u>

1. Gate House and Outlet Pipes - The gate house appeared to be in generally good condition. The basement walls are constructed of masonry and show minor scaling and erosion. There was evidence of some patching to the walls. On the floor of the basement the two outflow pipes could be seen with water observed around the outside of the pipes and on the floor.

On the day of inspection there was discharge from the 20-inch diameter outflow pipe into Jackson Creek (Fig. 12, Appendix D), on the far side of Jackson Summit Road. The valves for the 8-inch diameter intake pipe, the 20-inch diameter intake pipe, and the 20-inch diameter "mud" pipe were each in turn opened and closed, and the flow observed. All the valves appeared to function properly and are easily accessible via turning wheels mounted on valve standards on the floor of the gate house which are connected to the valves by 30-foot valve stems. The flow from the "mud" pipe was cloudy.

The two 20-inch diameter cast iron outlet pipes were slightly rusted, but appeared to be in good condition.

2. Overflow Spillway - Inspection of the spillway, approach slab, and discharge channel led to the following observations:

i) The left stone masonry wing wall of the spillway is in generally good condition with some recent patching. One structural crack was noted (Fig. 3, Appendix D) at upstream end of spillway overflow section.

ii) The right stone masonry wing wall (Fig. 13, Appendix D) is in generally good condition with some minor spalling of recent patch concrete. Some minor cracks were noted, one in the top sill at the upstream end of the spillway sill and another crack a short distance away downstream.

iii) The approach slab was in good condition. The junction between the approach slab and the spillway sill (Fig. 3, Appendix D) was open about 1 inch, and other slab joints were noted to be only slightly open.

iv) The spillway sill has undergone considerable spalling and erosion along the downstream face (Fig. 14, Appendix D). Flashboard mounts at the crest are badly deteriorated (Figs. 13 and 14, Appendix D). At the time of inspection, flashboards were not in place.

v) The discharge slab was in good condition with a half inch gap between it and the spillway sill. Minor vegetation was growing in cracks at the base of the wing walls (Fig. 13, Appendix D).

vi) The spillway discharge channel (Figs. 15 and 16, Appendix D) appeared in good condition.

d. Foundation

The foundation of this structure was not observed, but our geologic evaluation of the site indicates that bedrock is in general close to the surface. The application for construction indicates that the foundation materials are sands and gravels.

e. Reservoir Area

The reservoir area (Fig. 17, Appendix D) is heavily wooded. Slopes along the banks are variable, ranging from 1 vertical:2 horizontal to 1 vertical:10 horizontal, and average about 1 vertical:3 horizontal. Based on our field observation and examination of stereo pairs of air photos, there is no evidence of sloughing

or sliding failures of the slopes, or indications of significant sedimentation of the reservoir. The cloudiness of the water released from the mud pipe suggests the possibility of some sedimentation.

f. Downstream Channel

After accepting flow from the discharge pipes, Jackson Creek recrosses Jackson Summit Road through a 60-inch diameter culvert at the downstream end of the spillway discharge channel.

The downstream channel (Fig. 18, Appendix D) leading to Mayfield Lake is clear and free of debris. The channel itself is a natural stream with heavily vegetated and wooded slopes; the slopes appear stable. Immediately below the spillway is the caretaker's home, and about 1 mile downstream in Mayfield (Figs. 19 and 20, Appendix D), several houses and trailers are situated in a flood plain area.

Two small bridges upstream of Mayfield were reportedly washed out in the past three years due to combined spillway and outlet works discharge. The two bridges appear hastily repaired.

3.2 Evaluation

The subject dam and its appurtenant structures appear to be in generally good condition. The observed seepage downstream of the toe is, however, a cause of concern and may indicate that the cutoff wall is not fully effective. Although there are indications that this condition has existed for some time and there are no signs of erosion or failure, further investigation is advisable.

The presence of large trees on the embankment slopes of earthfill dams ordinarily poses a potentially dangerous condition.

a) If the trees are shallow rooted, they could blow over in a major storm, carrying part of the embankment with them.

b) If the trees are deep rooted, the root systems may extend transversely through the embankment. Death of the trees and subsequent decay of the root systems may result in the formation of water passages (pipes). Such pipes provide natural channels for the seepage of water through the embankment; this may result in erosion of the embankment or in the generation of seepage forces that would adversely affect the stability of the slope.

c) The trees on the downstream face of the subject dam appeared to be well established. A study should be made to establish whether the trees are shallow rooted or deep rooted. If they are shallow rooted, removal is in order. If they are deep rooted, removal would be potentially more dangerous than leaving them in place; for this dam, the danger is substantially mitigated by the presence of the concrete cutoff wall.

SECTION 4

OPERATIONAL PROCEDURES

4.1 Procedures

There were no written procedures available; however, we were informed that by deed restriction, the flow downstream must be carefully maintained. Flow is coordinated with the water supply system to meet daily requirements. This usually presents no problem in the summer, fall, and winter. In the spring, during the runoff, the outflow is controlled and coordinated with other parts of the system to avoid flooding of the roads in Mayfield. This is done by drawing the pool elevation down below the spillway elevation, prior to spring thaw. We were informed that in the spring, there is substantial flow over the spillway. After spring runoff, flashboards are installed (2 feet above the spillway crest) for water storage purposes. They are removed in late summer after the water level drops below the spillway crest.

Water outflow is controlled from the gate house, with the gate keeper living a very short distance away. Normally, only the 20-inch diameter discharge pipe is used, with the 20-inch diameter mud pipe available for emergencies.

4.2 Maintenance of Dam

A four man crew periodically maintains the dam by patching cracks in the masonry, cutting vegetation on the upstream slope, and keeping the spillway discharge channel and seepage trench free of debris.

4.3 Maintenance of Operating Facilities

The valves for the intake and outflow pipes appear to be maintained satisfactorily, and appear to be in generally good condition.

4.4 Warning Systems in Effect

The general condition of the dam and its appurtenant structures are checked daily as part of the required outflow that must be maintained. In case of an emergency, the police have been instructed to call the caretaker, Don Cast, or his backup, whose duty it is to regulate the outflow. These people are available on a 24-hour basis with the caretaker living just below the

dam itself. Access to the operating facilities is maintained during the winter, and the access road is plowed by either the town or the water board.

4.5 Evaluation

Although we were not shown or have available written documents for either the operating or the emergency warning procedures, both appear to be generally satisfactory, except for high flows, as discussed later. The flashboard mounts appeared to be quite deteriorated, and it did not appear that vegetation had been cut recently on the embankment.

As part of general maintenance, the mud pipe should be flushed at least annually to avoid clogging of its upstream open end.

SECTION 5

HYDRAULICS/HYDROLOGY

5.1 Evaluation of Hydraulic Features

a. Design Data

The dimensions of the overflow spillway are found on, or can be scaled from, the design drawings (Plates III and IV). There are no data or computations available on the hydraulic performance of any of the inlet or outlet structures. Flow computations performed as part of this study are found in Appendix C.

b. Experience Data

No formal data or measurements of flow are available. The maximum flow over the spillway observed by the caretaker was in excess of 2 feet.

c. Visual Observations

The two 20-inch diameter intake pipes and the 8-inch diameter intake pipe were observed to function satisfactorily on the day of inspection. The pool elevation was well below that of the spillway crest, so the spillway was not observed in operation. However, there is no reason to believe that it would not function satisfactorily. The maximum height of water that the spillway can accommodate without overtopping is 5 feet. The spillway discharge channel was free of debris and in good repair so that it too, should be able to function satisfactorily.

5.2 Evaluation of Hydrologic Features

a. Design Data

No hydrologic data or analyses could be found in the NYSDEC or City of Gloversville records for the Jackson Summit Reservoir and its local watershed. To our knowledge, there are no gaging stations in the local basin. According to the Recommended Guidelines for Safety Inspection of Dams, Department of the Army, OCE, the recommended Spillway Design Flood (SDF) for the subject dam is the Probable Maximum Flood (PMF) since the dam is of intermediate size and poses a high hazard.

b. Experience Data

Information on the PMF for the Jackson Summit Reservoir and its watershed was obtained from the Upper Hudson and Mohawk River Basins Hydrologic Flood Routing Models prepared in 1976 for the New York District of the U.S. Army Corps of Engineers (USACE) by Resource Analysis, Inc. In this study, the rainfall runoff mathematical model HEC-1 was used to reconstitute the major historical floods and to simulate the Standard Project Flood (SPF). In addition to the SPF simulation, the rainfall pattern for Tropical Storm Agnes was transposed to fall directly on the basins under study, and the discharges resulting from this rainfall were determined by an application of the calibrated model.

In a telephone conversation with Mr. Thomas Smyth, USACE, New York District, we were informed that for Phase I hydrologic analyses, the Probable Maximum Flood (PMF) could be considered as twice the SPF.

The Jackson Summit Reservoir and its drainage basin were located within subarea 47 of the Upper Hudson River Basin to confluence with Sacandaga River. Computations for routing the PMF through the Jackson Summit Reservoir are found in Appendix C of the report.

c. Visual Observations

Interviews with personnel of the Water Board of the City of Gloversville (WBCG) revealed that the maximum high water during the past 20 years occurs in the spring when the water in the reservoir rises in excess of 2 feet above the crest of the spillway. This appears to be verified by observable high water marks on the upstream embankment face and also from the evidence that two small bridges immediately downstream have been washed out at times. We were also informed that after spring runoff, 2 feet of flashboards are used to provide additional storage.

d. Overtopping Potential

The computations in Appendix C indicate that the subject dam will be overtopped by the PMF. The maximum height of water that can flow over the spillway without the dam being overtopped is 5 feet (3 feet with flashboards in place). At that height, the spillway passes approximately 2400 cfs (924 cfs with flashboards). The routed PMF is approximately 5500 cfs. Therefore, the spillway can pass only 43 percent (18 percent with flashboards) of the PMF.

e. <u>Spillway Adequacy</u>

The results of the hydrological analysis indicate that the spillway capacity is inadequate with respect to passing the PMF, and the topping of an earth dam often results in the rapid washout of a dam section. In addition, the spillway is considered seriously inadequate because it satisfies all the following conditions set forth in DAEN-CWE-HY Engineer Technical Letter No. 1110-2-234 dated 10 May 1978:

1. There is high hazard to loss of life from large flows downstream of the dam.

2. Dam failure resulting from overtopping would significantly increase the hazard to loss of life downstream from the dam from that which would exist just before overtopping failure.

3. The spillway is not capable of passing one-half of the Probable Maximum Flood without overtopping the dam and potentially causing failure.

The use of floodboards in order to raise the crest of the spillway drastically reduces the capacity of the already seriously inadequate spillway.

SECTION 6

STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observations

Visual observations of the earth embankment, overflow spillway, and outlet structure did not disclose any signs of structural instabilities, although there was considerable seepage downstream of the toe of the embankment. Because the seepage is surfacing at some distance (about 50 feet) beyond the toe and extends to 100+ feet beyond the toe in natural material, it would appear that the concrete cutoff wall may be functioning satisfactorily in preventing the water from passing directly through the dam, but is causing the water to take a deeper flow path under the base of the embankment.

The vertical and horizontal alignments of the embankment appeared to have been maintained, and there was no evidence of cracks. Some roots of established trees may have crossed the embankment crest transversely; this condition should not exist at depth because of the presence of the concrete cutoff wall.

b. Design and Construction Data

No design or construction data relating to stability were available for review. Since no information was available regarding the nature of the embankment material or their engineering properties, neither stability nor seepage analyses could be performed as part of this study.

c. Operating Records

None available.

d. Post Construction Changes

Repairs have been made to the masonry wing walls on either side of the spillway and to masonry basement walls of the gate house. These repairs consisted only of patching the masonry with concrete and did not alter or change the structures to any degree. Flashboards have been added to the overflow spillway section.

e. Seismic Stability

The Jackson Summit Reservoir is nominally located on the border between Seismic Zone 1 and Seismic Zone 2 according to the Algermissen Seismic Risk Map. The USACE guidelines suggest that in the event of doubt about the proper zone, the higher zone should be used. Although earthquakes that cause moderate damage can be expected to occur in Zone 2, the design and construction practices conventionally used for small earth dams are considered to be adequate in areas of low seismicity and the safety factors used for static conditions should preclude major damage for all but the most catastrophic earthquakes. However, no computations were performed to evaluate the effect of earthquakes on the subject dam.

SECTION 7

ASSESSMENT, RECOMMENDATIONS AND REMEDIAL MEASURES

7.1 Dam Assessment

a. Safety

Visual Inspection of the system and a review of the little available engineering data indicated that the dam embankment and the overflow spillway are in generally good condition and functioning satisfactorily at this time. Our approximate hydrologic/hydraulic calculations indicate that the discharge capacity of the overflow spillway is seriously inadequate according to the OCE screening criteria; flashboards then drastically reduce the capacity of the already seriously inadequate spillway. Although no signs of sloughing, erosion or cracking of the earthen embankment were observed, substantial seepage beyond the downstream toe deserves further investigation; the stability of the embankment may then be analyzed in the light of the findings.

b. Adequacy of Information

The information available to us is not adequate for a detailed analysis of the stability of the embankment including seepage effects. The safety assessment made above is based almost entirely upon visual observation on the day of the inspection and the fact that the information available indicates that the dam appears to have been designed according to conventional engineering practice (reasonable slopes, cutoff wall, etc.). Since there were no hydrologic data available, our assessment of the overtopping potential is based solely on transpositioning modeling results to the subject drainage basin.

c. Urgency

Inasmuch as the spillway capacity appears to be seriously inadequate according to the OCE screening criteria without the use of flashboards, and becomes even more inadequate with their use, there is some urgency in performing the additional study recommended below. In addition, although the embankment appears stable at this time, seepage beyond the downstream toe requires investigation with some urgency. The spillway study and the seepage study should both be accomplished within one year.

d. Necessity for Future Investigations

In view of the inadequacy of the overflow spillway with respect to its inability to pass at least one half of the computed PMF without overtopping the dam (even without flashboards), and in view of the fact that overtopping in the case of earthfill dams is usually disastrous, the actual capacity of the spillway should be determined using more precise and sophisticated methods and procedures. This further investigation should be performed as soon as possible. Following this study, the need for and type of mitigating measures should be determined. Until such a study is completed, the use of flashboards should be discontinued, and around-the-clock surveillance of the structure should be provided during periods of unusually heavy precipitation.

Due to the seepage beyond the toe of the embankment, it is recommended that borings be drilled through the downstream slope of the embankment, penetrating into the virgin soil, to establish the properties of both the embankment and the foundation materials. Later, piezometers may be installed in these borings to establish the seepage characteristics through the embankment. Subsequent stability analysis will provide a better understanding of the safety of this dam. If it were found safe, necessary protective measures to prevent piping failures (e.g. a subdrainage system and/or injection grouting) would then be recommended. Test pits should be dug along the centerline of the dam crest to verify the existence of the cutoff wall; the vertical dimension of the wall should be checked by coring.

7.2 Recommendations and Remedial Measures

a. Alterations/Repairs

1) The joints in the spillway approach slab and discharge slab should be sealed and any vegetation removed.

2) The junctions between the spillway sill and the approach slab and discharge slab should be sealed.

3) All minor damages to other concrete or masonry appurtenances, such as the wing walls and gate house basement walls, should be repaired.

4) The gate house and its basement should be lighted, either by an electrical circuit or by a system of battery-operated emergency lights; the ladder leading

to the basement should be repaired, and railings added, so that access to outlet pipe valves can be gained safely in an emergency.

5) The low woody growth on the embankment faces should be removed.

6) The large trees on the embankment should be investigated to determine whether they are shallow rooted or deep rooted. If shallow rooted, they should be cut down; if deep rooted, they should remain.

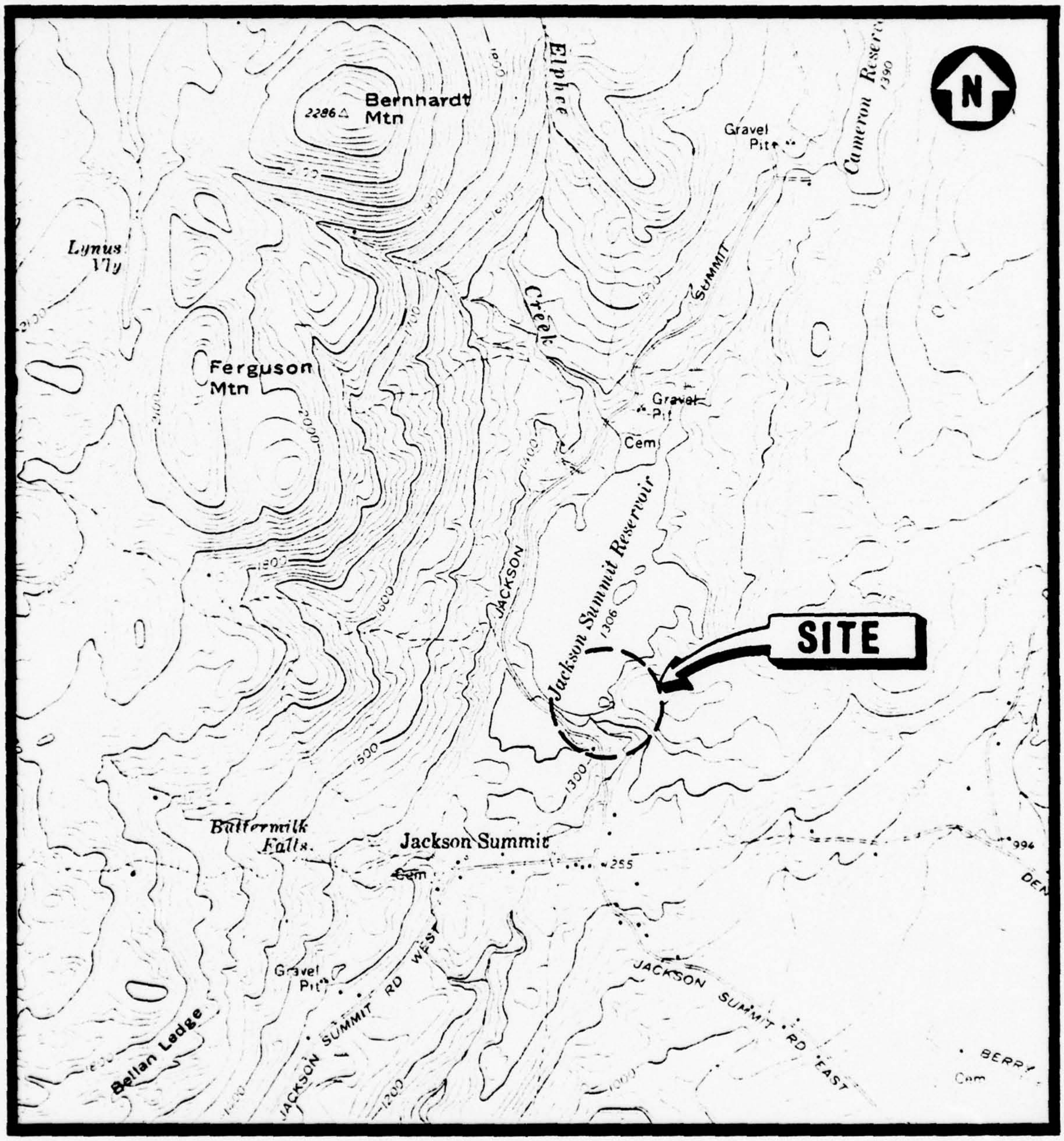
The remedial work recommended above is not critical in terms of urgency. It should be done as soon as practicable. Items 5 and 6 could be accomplished this year; all recommendations should be completed within the next three years.

b. Operations and Maintenance Programs

A specific program of periodic maintenance of the dam embankment and its appurtenant structures should be established and followed. This would include definite times for trimming of vegetation on the embankment, inspection and repair of concrete structures, testing of control valves for leakage, timely repair of access road, etc. Periodically, water should be allowed to flow through the mud pipe to avoid clogging of its open end with silt in the reservoir.

c. Further Studies

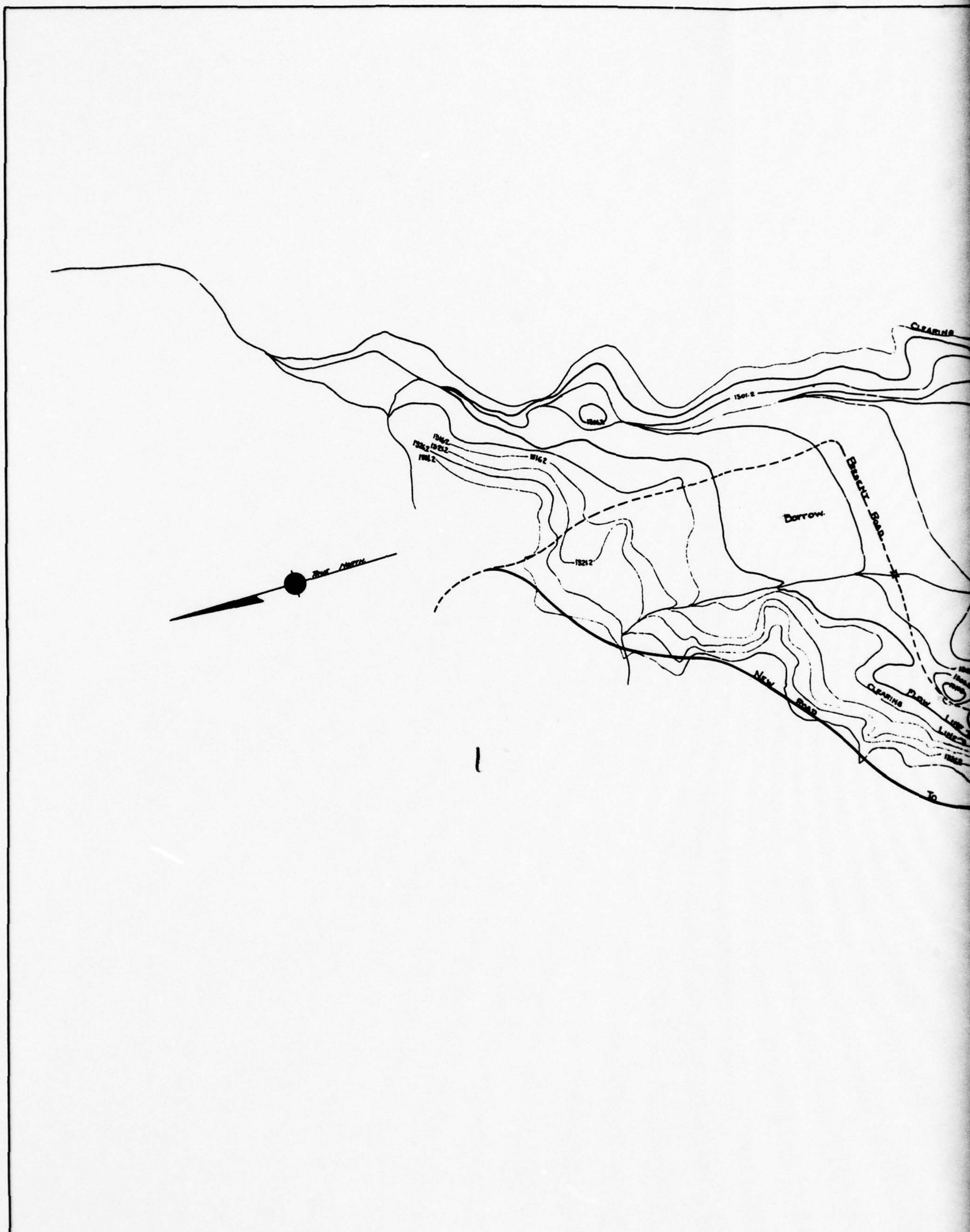
The two investigations pertaining to hydrology and seepage, as discussed in Article 7.1, should be performed.



SCALE: 1"=2000'

MAP SOURCE: BASE MAP WAS ADAPTED FROM U.S.GEOLOGICAL SURVEY MAP, JACKSON SUMMIT, N.Y. QUADRANGLE, 7.5 MINUTE SERIES 1970.(BASE MAP MAY NOT REFLECT RECENT CARTOGRAPHIC CHANGES).

PLATE I SITE LOCATION MAP

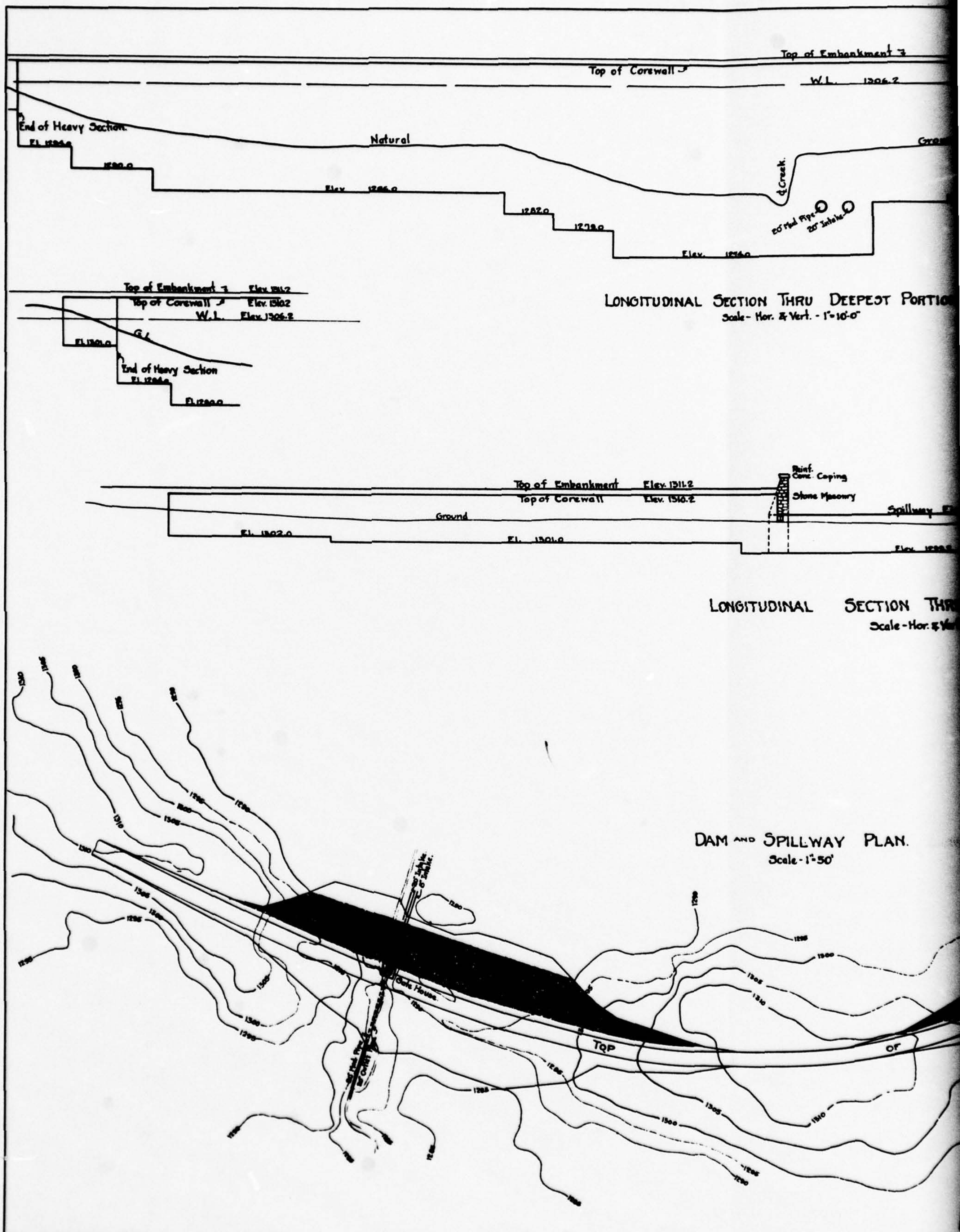


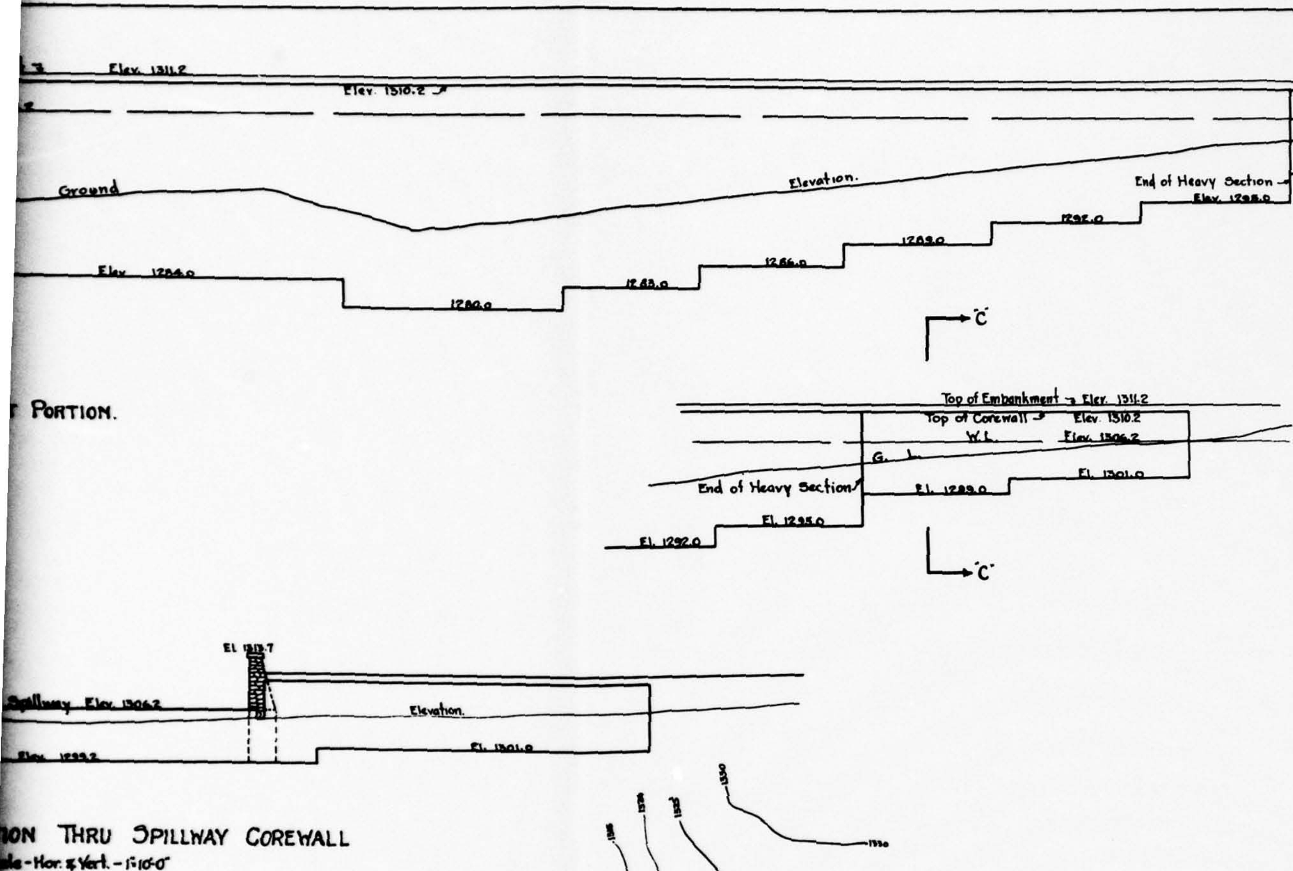
CLEARING
1501.2
Borrow.
PRESENT ROAD
1321.2
NEW ROAD
CLEARING
FLOW
TO

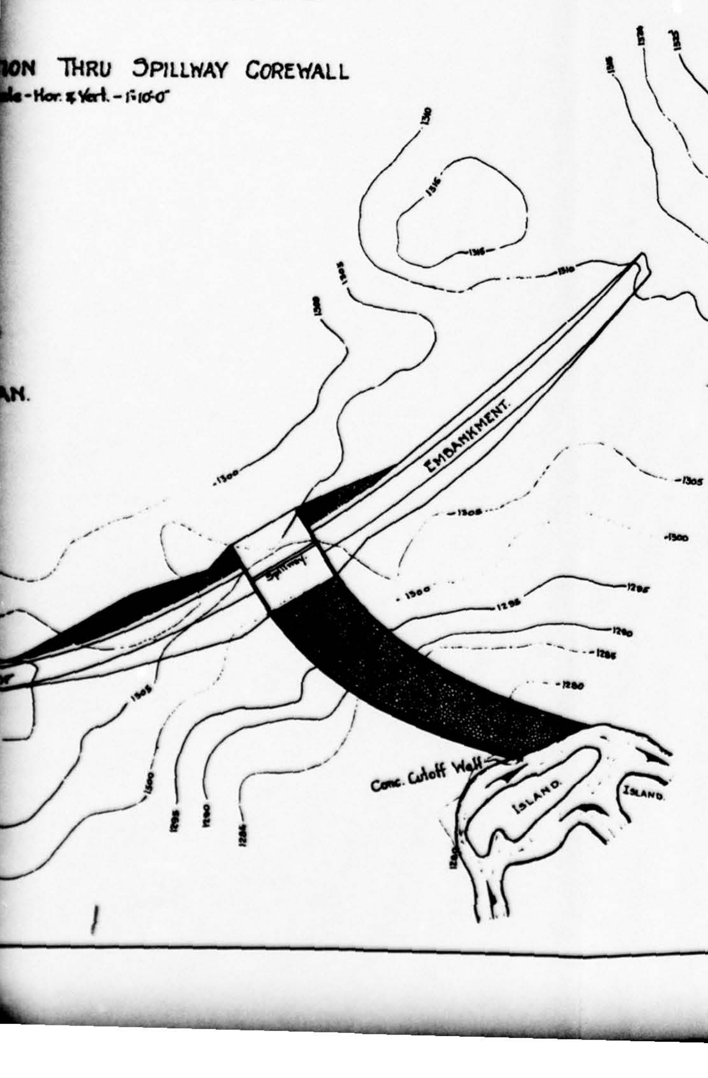
JACKSON CREEK RESERVOIR
FOR THE
GLOVERSVILLE WATER WORKS
GLOVERSVILLE, N.Y.
GENERAL PLAN
EXHIBIT "B" TO ACCOMPANY APPLICATION
BEFORE THE WATER POWER & CONTROL COMMISSION
STATE OF NEW YORK.
SEPT. 1933. SCALE- 1"=200'

_______ ENGINEER.
LICENSE 4658.

CONVERSE WARD DAVIS DIXON
CONSULTING ENGINEERS
PLATE II SEPTEMBER 1978


Top of Embankment
Top of Corewall
W.L. 1306.2
End of Heavy Section
Natural
Creek
20" Mud Pipe
20" Intake
Top of Embankment Elev. 1311.2
Top of Corewall Elev. 1310.2
W.L. Elev. 1306.2
G.L.
El. 1301.0
End of Heavy Section
LONGITUDINAL SECTION THRU DEEPEST PORTIO
Scale- Hor. & Vert. - 1"=10'-0"
Reinf. Conc. Coping
Stone Masonry
Top of Embankment Elev. 1311.2
Top of Corewall Elev. 1310.2
Ground
El. 1302.0
El. 1301.0
LONGITUDINAL SECTION THR
DAM AND SPILLWAY PLAN.
Scale - 1"=50'
Gate House
TOP OF





2

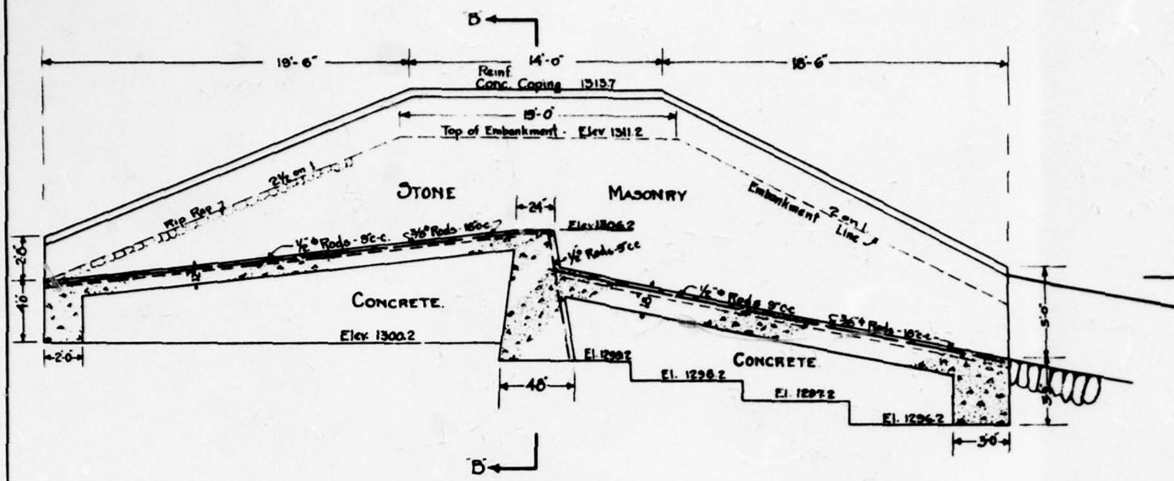
JACKSON CREEK RESERVOIR
FOR THE
GLOVERSVILLE WATER WORKS
GLOVERSVILLE, N.Y.
GENERAL PLAN
AND
CROSSECTIONS OF DAM & SPILLWAY
EXHIBIT "D" TO ACCOMPANY APPLICATION
BEFORE THE WATER POWER & CONTROL COMMISSION
STATE OF NEW YORK.

SEPT. 1933. SCALE-AS SHOWN.

______ ENGINEER.
LICENSE 4656.

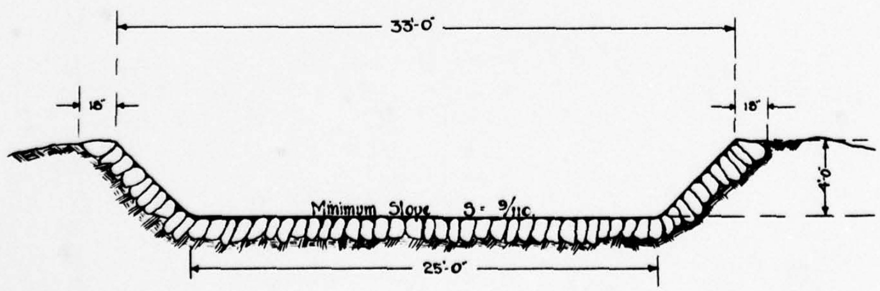
CONVERSE WARD DAVIS DIXON
CONSULTING ENGINEERS
PLATE III SEPTEMBER 1978

2

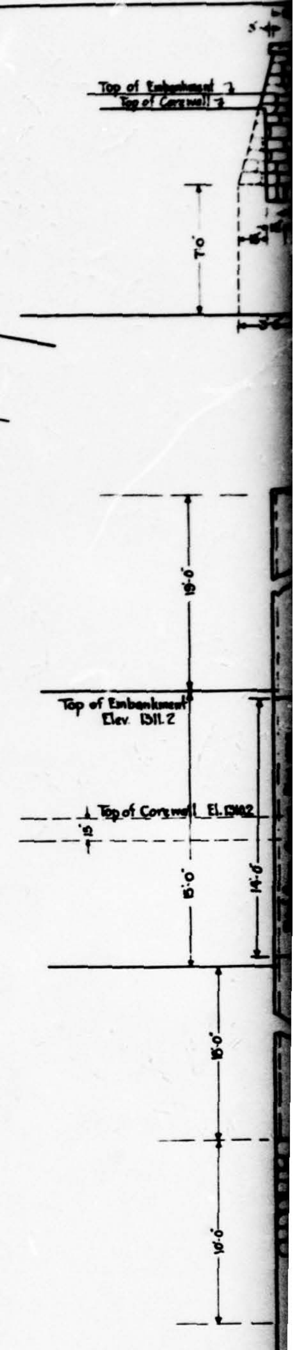


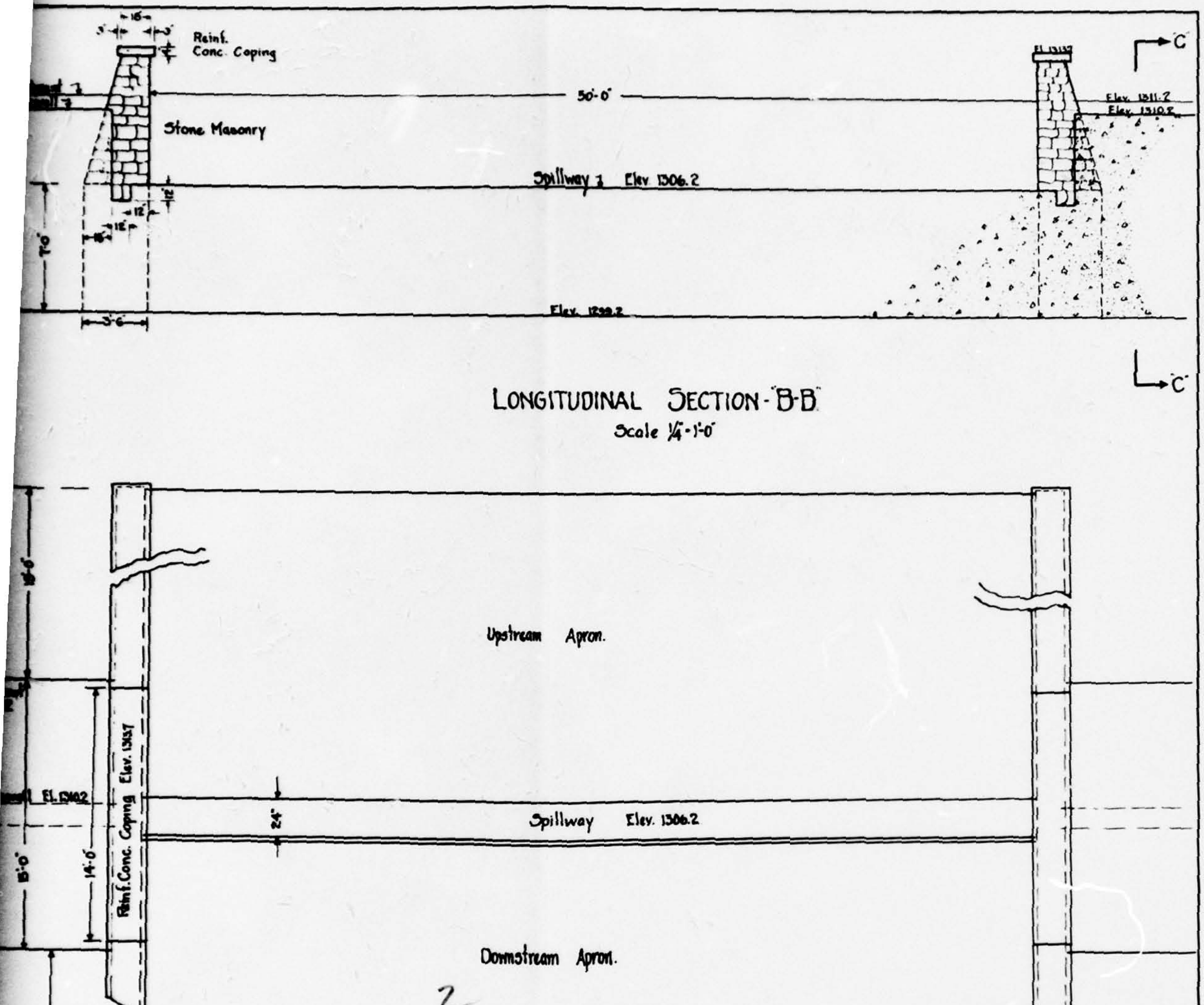
Section Thru Spillway.
Scale ¼" = 1'-0"

Section Thru Corewall - "C-C."
Scale ¼" = 1'-0"



Normal Section of Channel
Scale ¼" = 1'-0"



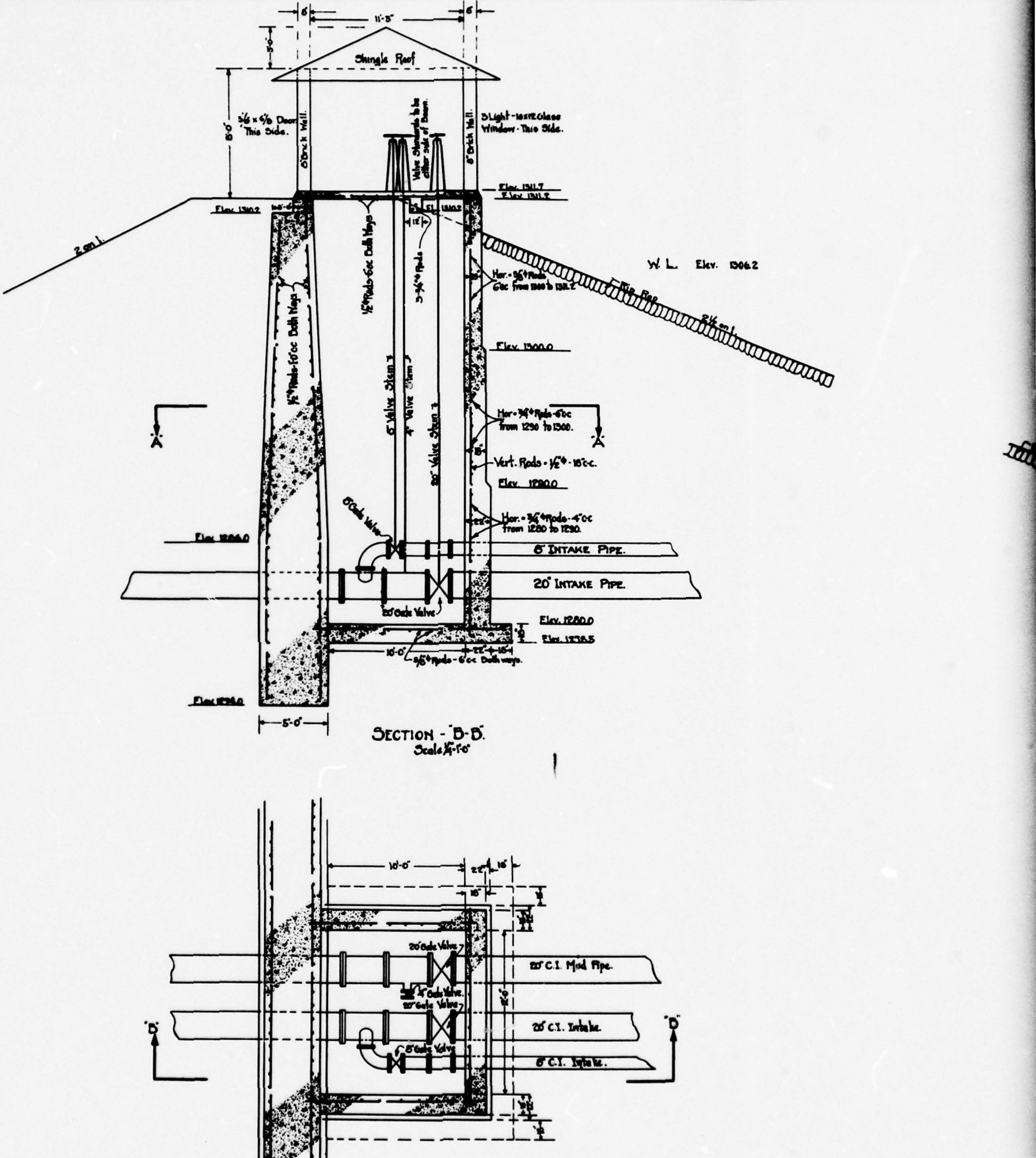


CONVERSE WARD DAVIS DIXON
CONSULTING ENGINEERS
PLATE IV SEPTEMBER 1978

JACKSON CREEK RESERVOIR
FOR THE
GLOVERSVILLE WATER WORKS
GLOVERSVILLE, N.Y.
SPILLWAY DETAILS
EXHIBIT "D" TO ACCOMPANY APPLICATION
BEFORE THE WATER POWER & CONTROL COMMISSION.
STATE OF NEW YORK
SEPT. 1933 SCALE - AS SHOWN.

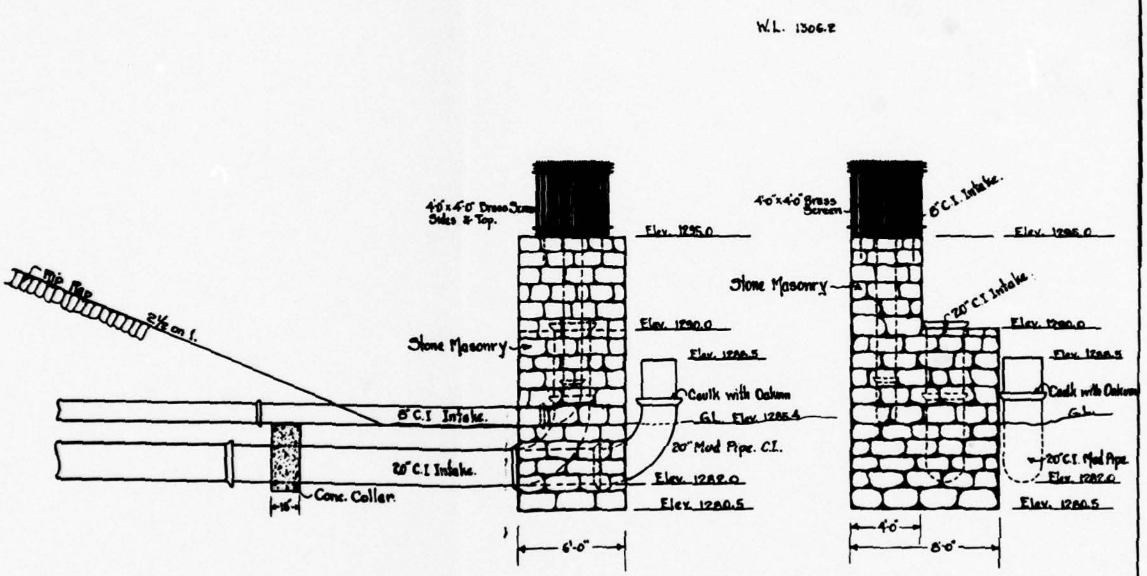
3

ENGINEER
LICENSE 4655



SECTION - "B-B"
Scale 1/4" = 1'-0"

SECTION - "A-A"
Scale 1/4" = 1'-0"



INTAKE DETAIL
Scale ½"=1'0".

JACKSON CREEK RESERVOIR
FOR THE
GLOVERSVILLE WATER WORKS
GLOVERSVILLE, N.Y.
GATEHOUSE, INTAKE, & COREWALL DETAILS
EXHIBIT "D" TO ACCOMPANY APPLICATION BEFORE THE WATER POWER & CONTROL COMMISSION. STATE OF NEW YORK.
SEPT. 1933. SCALE-AS SHOWN.

ENGINEER.
LICENSE 4656.

CONVERSE WARD DAVIS DIXON
CONSULTING ENGINEERS
PLATE V SEPTEMBER 1978

APPENDIX A

CHECKLIST - ENGINEERING DATA

CHECKLIST

HYDROLOGIC AND HYDRAULIC DATA

ENGINEERING DATA

NAME OF DAM: Jackson Summit Reservoir Dam NDS ID NO.: NY 153

RATED CAPACITY (ACRE-FEET) 1079 NYS DEC ID NO.: 172-976

ELEVATION TOP NORMAL POOL (STORAGE CAPACITY): Varies: 1306.2

ELEVATION TOP FLOOD CONTROL POOL (STORAGE CAPACITY): 1306.2

ELEVATION MAXIMUM DESIGN POOL: 1311.2

ELEVATION TOP DAM: 1311.2

CREST (Overflow Spillway):

a. Elevation 1306.2
b. Type Approaching broad crested weir with sloping U/S & D/S faces
c. Width 2 feet
d. Length 50 feet
e. Location Spillover Approx. 340' right of left end of dam
f. Number and Type of Gates None

OUTLET WORKS:

a. Type 1-20" diam. cast iron pipe at elevation 1282.0
b. Location Under embankment near right end of dam
c. Entrance inverts 1290.0 for 20" intake; 1295.0 for 8" intake
d. Exit inverts 1282±
e. Emergency draindown facilities 1-20" cast iron "mud" pipe at elevation 1282.0

HYDROMETEOROLOGICAL GAGES:

a. Type None
b. Location None
c. Records None

MAXIMUM NON-DAMAGING DISCHARGE: Unknown; 2400 cfs (estimated)

CHECKLIST

ENGINEERING DATA

DESIGN, CONSTRUCTION, AND OPERATION
PHASE I

NAME OF DAM: Jackson Summit Reservoir Dam

NDS ID NO.: NY153 NYS DEC ID NO.: 172-976

ITEM	REMARKS
DRAWINGS	Design drawings entitled "Jackson Creek Reservoir for the Gloversville Water Works", dated Sept. 1933, containing: (1) General Plan of Site (Plate II); (2) General Plan & Cross Sections of Dam & Spillway (Plate III); (REFER TO SHEET 5)
REGIONAL VICINITY MAP	Dam shown on USGS 7½ minute quadrangle sheet of Jackson Summit, N.Y. (N4307.5-W7415.0)
CONSTRUCTION HISTORY	None available
TYPICAL SECTIONS OF DAM	Sections shown in design drawings of Jackson Creek Reservoir (Plate III)
HYDROLOGIC/HYDRAULIC DATA	USACE hydrological model for Upper Hudson River Basin and computed capacity vs. pool elevation are the only hydrologic data available. No hydraulic data available.

ENGINEERING DATA

ITEM	REMARKS
OUTLETS: Plan Details Constraints Discharge Ratings	Plan and details shown in design drawings of Jackson Creek Reservoir (Plate V). Constraints and discharge ratings not available.
RAINFALL/RESERVOIR RECORDS	None available
DESIGN REPORTS	None available
GEOLOGY REPORTS	None available
DESIGN COMPUTATIONS: Hydrology & Hydraulics Dam Stability Seepage Studies	None available

ENGINEERING DATA

ITEM	REMARKS
MATERIALS INVESTIGATIONS Boring Records Laboratory Field	None available. 1933 application indicates natural soils to be sand and gravel.
POST-CONSTRUCTION SURVEYS OF DAM	None available
BORROW SOURCES	None available
MONITORING SYSTEMS	None
MODIFICATIONS	Provisions for flashboards added to spillway crest (for approximate height of 2 feet above spillway crest)

ENGINEERING DATA

ITEM	REMARKS
HIGH POOL RECORDS	None available
POST-CONSTRUCTION ENGINEERING STUDIES AND REPORTS	None available
PRIOR ACCIDENTS OR FAILURE OF DAM Description Reports	None reported
MAINTENANCE AND OPERATION RECORDS	None available
SPILLWAY: Plan Sections Details	Plan, section, and details shown in design drawings of Jackson Creek Reservoir (Plate IV)

ENGINEERING DATA

ITEM	REMARKS
OPERATING EQUIPMENT: Plans Details	See "OUTLETS" on Sheet 2
PREVIOUS INSPECTION Date: Findings	Inspections are performed periodically by NYSDEC. The last inspection report on file is dated 23 October 1969, by the Department of Water Resources. The findings of the inspection indicated that the dam was in generally good condition (Appendix E).
DRAWINGS	(3) Spillway Details (Plate IV); (4) Gate House, Intake and Core Wall Details (Plate V)

APPENDIX B

CHECKLIST - VISUAL INSPECTION

CHECKLIST

VISUAL INSPECTION

PHASE I

NAME OF DAM: Jackson Summit Reservoir Dam   County: Fulton   State: New York   NDS ID No.: NY 153

Jackson Creek   NYS DEC ID No.: 172-976

Type of Dam: Earthfill   Hazard Category: High

Date(s) Inspection: 21 July 1978   Weather: Hot, humid, hazy   Temperature: $90^{\circ}F$

Pool Elevation at Time of Inspection: 1302.2 msl; 4' below spillway crest

Tailwater at Time of Inspection: 1282± msl ; at invert of mud pipe at downstream side of road

Inspection Personnel:

E. A. Nowatzki (CWDD)	Gary Culver (WBCG)	W. Sherman (WBCG)
G. S. Salzman (CWDD)	Lee Guild (MVE)	T. Jackson (WBCG)
C. Curthoys (WBCG)	Lee Mitchell (MVE)	

E. A. Nowatzki   Recorder

Remarks:

CWDD = Converse Ward Davis Dixon
WBCG = Water Board, City of Gloversville
MVE = Morrell Vrooman Engineers

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS	None visible	
UNUSUAL MOVEMENT OR CRACKING AT OR BEYOND THE TOE	None visible	
SLOUGHING OR EROSION: Embankment Slopes Abutment Slopes	None visible	
VERTICAL AND HORIZONTAL ALIGNMENT OF THE CREST	Appears OK	
RIPRAP FAILURES	None	

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
JUNCTION OF EMBANKMENT WITH: Abutment Spillway Other Features	All junctions OK	
ANY NOTICEABLE SEEPAGE	Seepage occurs from close to right end of embankment to right side of spillway. Seepage through virgin soil beyond embankment toe. *(REFER TO SHEET 3)*	
RECORDING INSTRUMENTATION	None	
DRAINS	None visible	
OTHER	Several large trees on upstream face. Woody growth and small trees on both upstream and downstream faces of built-up embankment, heaviest to left of spillway.	

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
ANY NOTICEABLE SEEPAGE	Of variable intensity - less where embankment consists of natural slope. Appears greatest about 100' left of gate house. Marshy in area from about 50' downstream of toe to trench at upstream side of roadway. Seepage flowing over	
	and through trench cut into stream which drains to 16" corrugated galvanized pipe (about 140' left of gate house). Small boil noted at culvert. Swampy area downstream of roadway between road and stream channel.	
	Seepage reportedly has occurred unchanged for at least 20 years according to William Sherman (WBCG).	

OUTLET WORKS

Sheet 1 of 2

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CRACKING AND SPALLING OF CONCRETE SURFACES IN OUTLET CONDUIT	Outlet conduit consists of twin 20" cast iron pipes. Slightly rusted (outside) but OK.	
INTAKE STRUCTURE	Gate house in generally good condition. Exterior masonry basement walls show minor scaling and erosion and signs of patching.	Subfloor wet. No electricity in building. No flashlight in building. Ladder to pit potentially unstable. All gates readily operable by (REFER TO SHEET 2)
OUTLET STRUCTURE	Twin 20" cast iron pipes OK	
OUTLET CHANNEL	None	
EMERGENCY GATE	None - Mud pipe could be used as emergency gate.	

OUTLET WORKS

Sheet 2 of 2

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
INTAKE STRUCTURE		hand. Intake structure upstream of gate house (Plate V), under water and not visible.

UNGATED SPILLWAY

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONCRETE WEIR	Some scaling and erosion of downstream face. Flashboard mounts on crest badly deteriorated. Reportedly 2-foot high wooden flashboards not in place.	
APPROACH CHANNEL	Apron in generally good condition - minor erosion in joints. 1" gap at junction of approach apron and weir - no problem.	Gap should be sealed.
DISCHARGE CHANNEL	Concrete apron badly eroded, with minor spalling. Small (½") gap at junction with downstream face of weir. Looks OK. Some patching (REFER TO SHEET 2)	Generally OK but gap should be sealed.
BRIDGE AND PIERS	None	
WING WALLS	Stone masonry. Signs of recent patching. Moderate structural transverse crack on left wing wall at about the weir crest. Minor transverse (REFER TO SHEET 2)	

UNGATED SPILLWAY

Sheet 2 of 2

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
DISCHARGE CHANNEL	evident. Little vegetation at discharge apron joints with wing walls.	
WING WALLS	cracking on top of right wing wall. Slight spalling of recent mortar patches.	

INSTRUMENTATION

Sheet 1 of 1

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
MONUMENTATION/SURVEYS	None	
OBSERVATION WELLS	None	
WEIRS	None	
PIEZOMETERS	None	
OTHER	None	

RESERVOIR

Sheet 1 of 1

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SLOPES	Variable. Average about 3 horizontal to 1 vertical. 10 horizontal to 1 vertical in some places - 2 horizontal to 1 vertical in others. Appear stable. Heavily wooded.	
SEDIMENTATION	Little, if any. Some cloudiness noted in mud pipe discharge.	

DOWNSTREAM CHANNEL

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONDITION Obstructions Debris Other	Debris - none. Outlet works discharge constricted by 60" culvert under dirt road near its juncture with spillway discharge channel. Reportedly, 2 bridges (SEE BELOW)	
SLOPES Cover Stability	Heavily vegetated and woody. Stability seems OK.	
APPROXIMATE NUMBER OF HOMES AND POPULATION	Caretaker's home immediately below spillway - could be in danger. At west side of Rt. 30 in Mayfield at stream intersection, several houses and trailers in flood plain. Concur with high hazard designation.	
CONDITION Obstructions Debris Other	washed out in past 3 years farther downstream due to combined spillway and outlet works discharge.	

APPENDIX C

COMPUTATIONS

BY: PGM 8/7/78 JOB # A7805 - 11 H

CHECKED BY ADD 8/7/78

SUBJECT: HYDROLOGY - FLOOD ROUTING SHEET 1 OF 13

JACKSON CREEK RESERVOIR

A_1 = DRAINAGE AREA FOR JACKSON CREEK = 5 sq. mi. FROM APPLICATION FOR THE CONSTRUCTION OF A DAM DAM NO. 172-476 26 SEPT 1933

$SDF_1 = PMF_1$ FOR JACKSON CREEK

A_2 = DRAINAGE AREA FOR SUBBASIN # 47 = 564 sq. mi. FROM UHR Pg 123

$SDF_2 = (SPF_2)2 = PMF_2 = 2(93128) = 186{,}256$ cfs

$$\left(\frac{A_1}{A_2}\right)^{.75} = \frac{PMF_1}{PMF_2} ; \quad 186{,}256\left(\frac{5}{564}\right)^{.75} = PMF_1 = 5381 \text{ cfs}$$

DETERMINE T_p FOR JACKSON CREEK

A_1 = AREA OF SUBBASIN 47 = 564 sq. mi.

T_{p1} = PEAK INFLOW FOR SUBBASIN 47 = 21 hrs.

A_2 = LAKE AREA OF JACKSON CREEK STORAGE RES. = 5 sq. mi.

$A_1 = \frac{\pi}{4} d_1^2 \qquad d_1 = \sqrt{\frac{4A_1}{\pi}} = \sqrt{\frac{4(564)}{\pi}} = 26.8$ mi

$A_2 = \frac{\pi}{4} d_2^2 \qquad d_2 = \sqrt{\frac{4A_2}{\pi}} = \sqrt{\frac{4(5)}{\pi}} = 2.5$ mi.

$T_{p2} = \frac{d_2}{d_1} T_{p1} = \frac{2.5}{26.8}(21) = 2$ hrs.

$T_b = 2.67(.2) = 5.2$ hrs.

[ref. design of small dams BUREC P69

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BY: PGM 8/7/78 JOB # A7805-11 H
CHECKED BY: ADD 8/7/78
SUBJECT: HYDROLOGY - FLOOD ROUTING SHEET 2 OF 13
JACKSON CREEK STORAGE RESERVOIR

DETERMINE ~~EXCESS~~ RESERVOIR CAPACITY FROM SPILLWAY LEVEL TO TOP OF DAM

POND AREA AT SPILLCREST ELEV. = 90 ACRES FROM N.Y. DPW APPLICATION 172-976
LENGTH OF SHORELINE = 2.25 mi. FROM U.S.G.S. QUAD MAP.
SLOPE ON SHORE ; ASSUME 1:6 FROM U.S.G.S. QUAD MAP

POOL ELEV.	Hc	STORAGE VOL
		$= H_c(\text{AREA}) + \left[\frac{H_c^2(\text{SLOPE})}{2} \times \text{LENGTH OF SHORE} \times \frac{5280}{43,560}\right]$
1306.2	0	0
1307.2	1.0	$= 90(1) + \left[\frac{1^2(6)}{2} \times \frac{2.25(5280)}{43,560}\right]$
		91 ACRE/FT. = 90 + .82
1308.2	2.0	$= 90(2) + \left[\frac{2^2(6)}{2} \times \frac{2.25(5280)}{43,560}\right]$
		183 ACRE/FT = 180 + 3.3
1309.2	3.0	$= 90(3) + \left[\frac{3^2(6)}{2} \times 2.25(5280)/43,530\right]$
		277 ACRE/FT = 270 + 7.4
1310.2	4.0	$= 90(4) + \left[\frac{4^2(6)}{2} \times \frac{2.25(5280)}{43560}\right]$
		373 ACRE/FT = 360 + 13.1
1311.2	5.0	$= 90(5) + \left[\frac{5^2(6)}{2} \times \frac{2.25(5280)}{43,560}\right]$
		470 ACRE/FT = 450 + 20.4

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BY: PGM 8/7/78 JOB: A780T-11 H

CHECKED BY ADD 8/7/78 JK 9/5/78

SUBJECT: HYDROLOGY - FLOOD ROUTING SHEET 3 OF 13

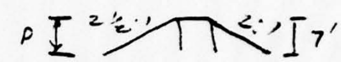
JACKSON SUMMIT STORAGE RESERVOIR

DETERMINE DISCHARGE ϕ (cfs) OVER SPILLWAY

$\phi = C_d L H_e^{3/2}$ WHERE $L = 50.5'$

THE VALUE OF C_d WILL BE DETERMINED AS A SHARP CRESTED WEIR WITH A SLOPING UPSTREAM FACE.

C_d FOR SHARP-CRESTED WEIRS $= 3.22 + 0.40\,h/p$



FROM FLUID MECHANICS 7-4b

BECAUSE OF THE SLOPING UPSTREAM FACE (2½ H : 1V) C_d WILL BE INFLUENCED BY A FACTOR DETERMINED FROM FIG 191 PG 277 FROM DESIGN OF SMALL DAMS. (USE 1.2 : 3 SLOPE OF UPSTREAM FACE)

ELEV.	H_e	ϕ	$= C_d L H_e^{3/2}$
1306.2	0	0	
1307.2	1		$= 1.001[3.22 + 0.40\frac{1}{2}]\,50.5(1)^{3/2}$
			$= 173$ cfs
1308.2	2		$= 1.001[3.22 + 0.40\frac{2}{2}]\,50.5(2)^{3/2}$
			$= 518$ cfs.
1309.2	3		$= 1.001[3.22 + 0.40\frac{3}{2}]\,50.5(3)^{3/2}$
			$= 1003$ cfs.
1310.2	4		$= 1.001[3.22 + 0.40\frac{4}{2}]\,50.5(4)^{3/2}$
			$= 1626$ cfs
1311.2	5		$= 1.001[3.22 + 0.40\frac{5}{2}]\,50.5(5)^{3/2}$
			$= 2385$ cfs.
1312.2	6		$= 1.001[3.22 + 0.4 \times \frac{6}{2}]\,50.5(6)^{3/2} = 3,284$
1313.2	7		$= 1.001[3.22 + 0.4 \times 7/2]\,50.5(7)^{3/2} = 4,325$
1314.2	8		$= 1.001[3.22 + 0.4 \times 8/2]\,50.5(8)^{3/2} = 5513$
1315.2	9		$= 1.001[3.22 + 0.4 \times 9/2]\,50.5(9)^{3/2} = 6852$

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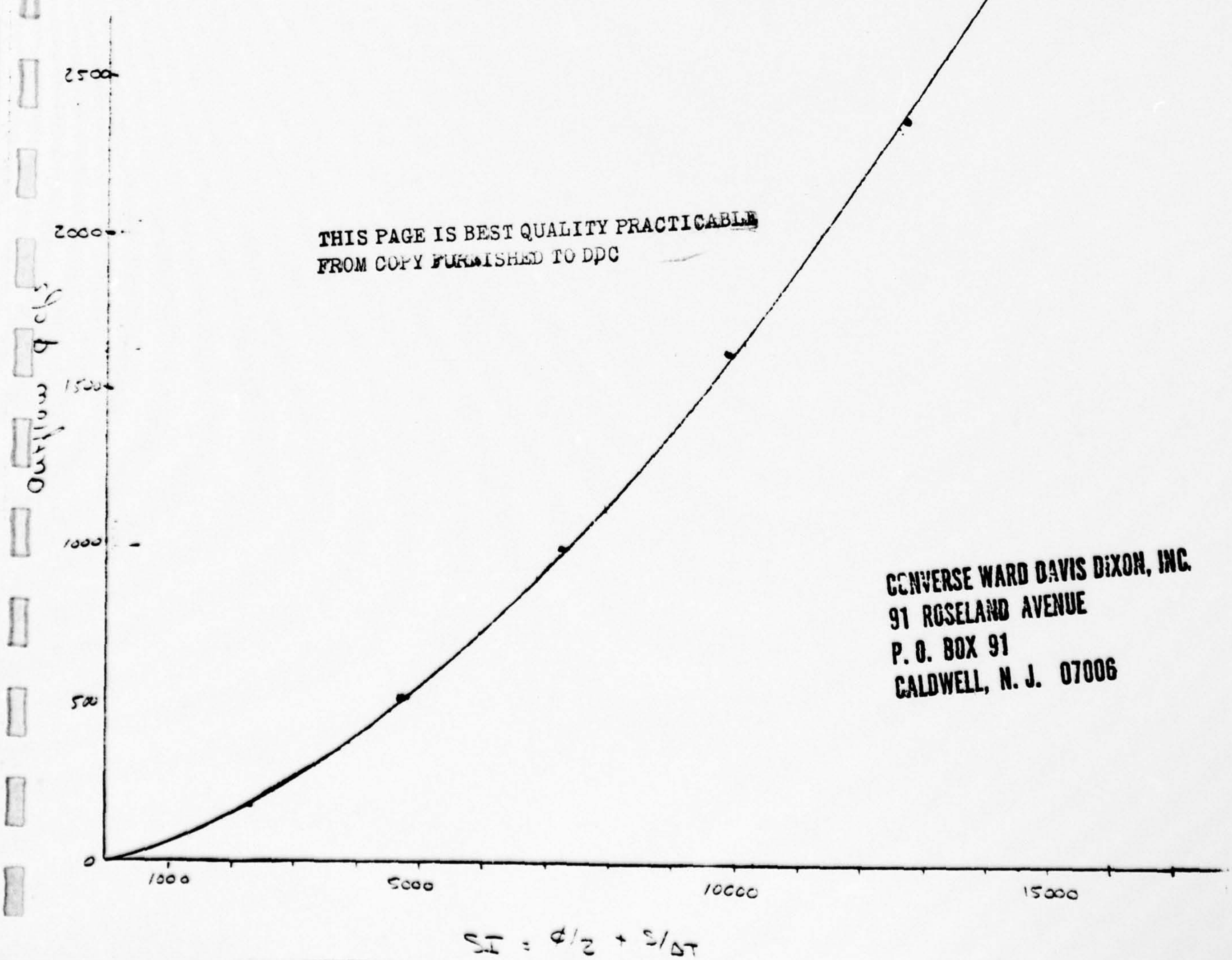
By: [illegible] 8/7/78
CHKD: PGM 8/8/78

[illegible] Flood Routing [illegible] [illegible] Storage [illegible]

[illegible]

Sheet 4 of 13

Elev	ϕ	$\phi/2$	Flood Stor [illegible]	Flood Stor [illegible]	S/ΔT ([illegible])	[illegible]
1306.2	0	0	0	0	0	0
1307.2	173	87	91	1101	2202	2289
1308.2	518	259	183	2214	4428	4687
1309.2	1003	502	277	3352	6704	7206
1310.2	1626	813	373	4513	9026	9839
1311.2	2385	1193	470	5687	11374	12567



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12.1

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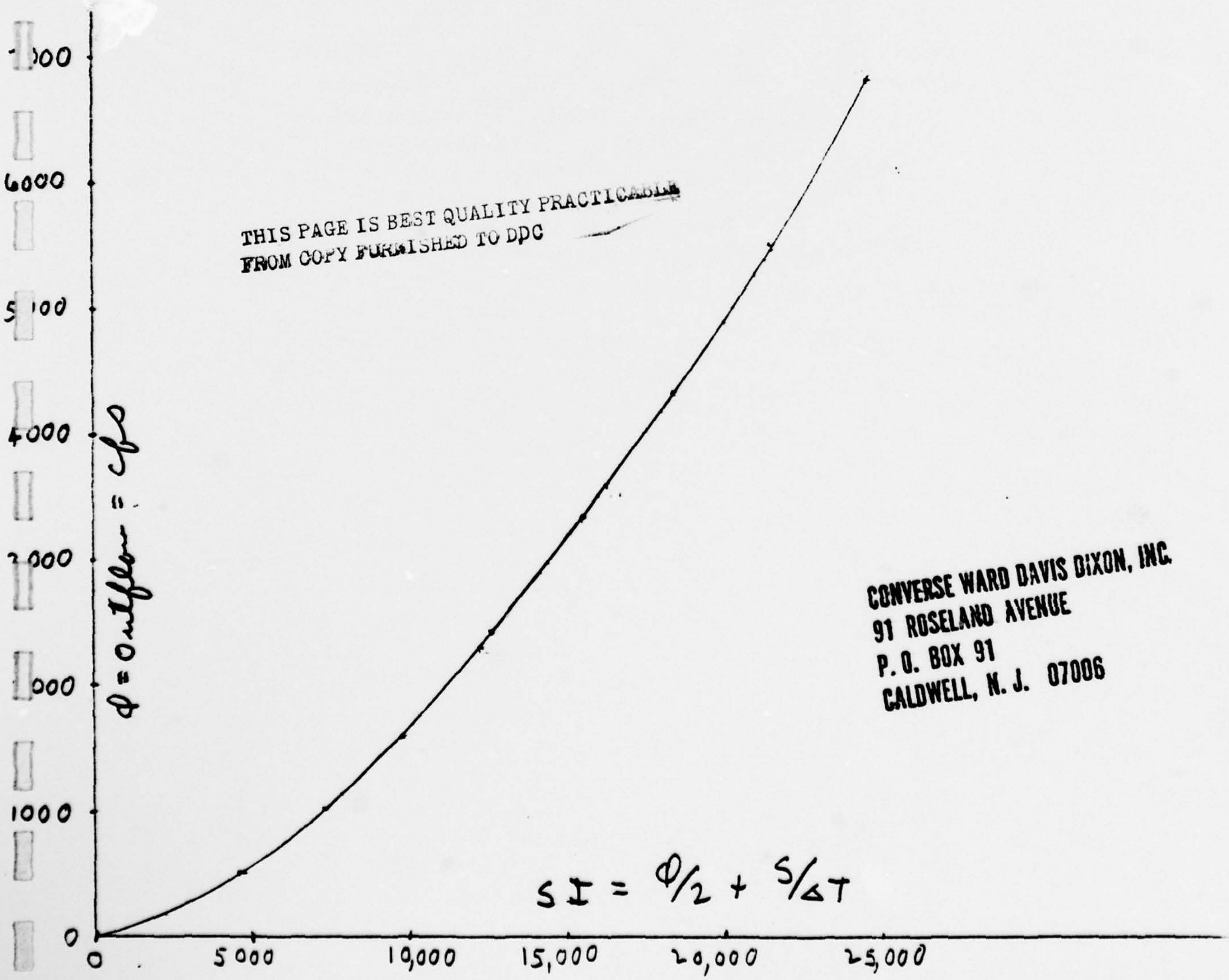
BY GSS DATE 8-29-78 SHEET NO. 4A OF 13
CHKD. BY JK DATE 9/5/78 JOB NO. A7805-11 H
SUBJECT Flood routing - Working Curve

Elevation	ϕ	$\phi/2$	Flood stor acre ft	Flood Stor cfs-hrs	$S/\Delta T$ (0.5 hrs)	$SI = \phi/2 + S/\Delta T$
1306.2	0	0	0	0	0	0
1307.2	173	87	91	1101	2202	2289
1308.2	518	259	183	2214	4428	4687
1309.2	1003	502	277	3352	6704	7206
1310.2	1626	813	373	4513	9026	9839
1311.2	2385	1193	470	5687	11,374	12,567
1312.2	3284	1642	570 ±	6897	13,794	15,436
1313.2	4325	2163	670 ±	8107	16,214	18,377
1314.2	5513	2757	770 ±	9317	18,634	21,391
1315.2	6852	3426	870 ±	10,527	21,054	24,480



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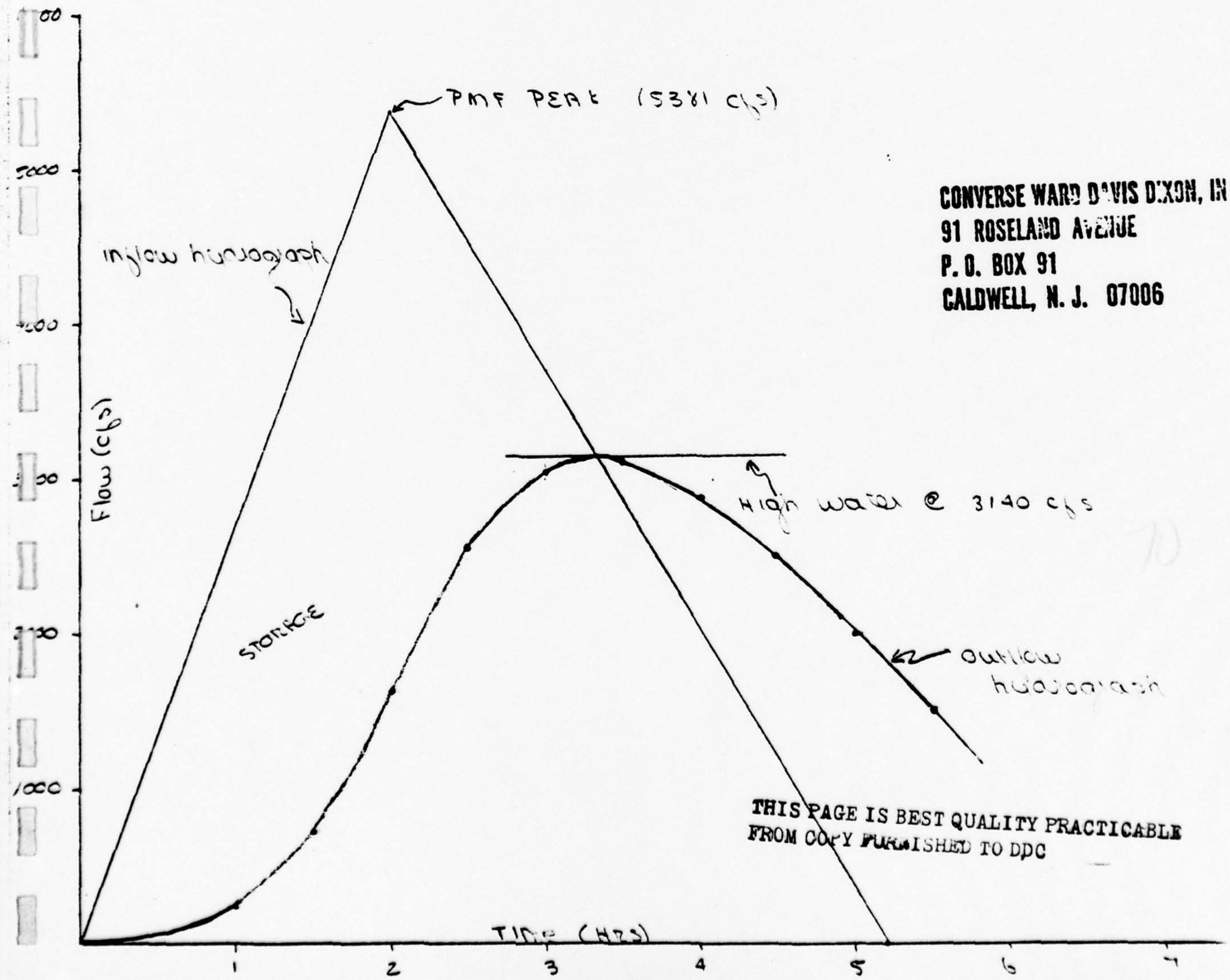
By ADD 8/8/78 — Job A7803-11-

CHKD: PSM 8/8/78 — Sheet 5 of 13

Subject Hydrology - Flood Routing

Jackson Summit Storage Reservoir

Time	I cfs	$\bar{I}$ cfs	S_{IN}	ϕ_N	$S_{IN} - \phi_N + \bar{I}_{N+1} = S_{IN+1}$
0	0	0	0	0	0 - 0 + 700 = 700
0.5	1400	700	700	40	700 - 40 + 2075 = 2735
1.0	2750	2075	2735	250	2735 - 250 + 3425 = 5910
1.5	4100	3425	5910	740	5910 - 740 + 4740 = 9910
2.0	5381	4740	9910	1620	9910 - 1620 + 4965 = 13255
2.5	4550	4965	13255	2580	13255 - 2580 + 4125 = 14800
3.0	3700	4125	14800	3060	14800 - 3060 + 3288 = 15028
3.5	2875	3288	15028	3120	15028 - 3120 + 2450 = 14358
4.0	2025	2450	14358	2900	14358 - 2900 + 1612 = 13070
4.5	1200	1612	13070	2515	13070 - 2515 + 775 = 11330
5.0	350	775	11330	2000	11330 - 2000 + 175 = 9505
5.5	0	175	9505	1510	9505 - 1510 + 0 = 7995



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SUBJECT: HYDROLOGY - FLOOD ROUTING SHEET 6 OF 13
JACKSON SUMMIT STORAGE RESERVOIR

TO DETERMINE HEIGHT OF POOL AT MAX Q

$$Q = cLH^{3/2}$$

$$3140 = 1.001\left[3.22 + 0.4\tfrac{H_e}{2}\right] 50.5\, H_e^{3/2}$$

ASSUME $H_e = 7'$

$$3140 = 1.001[4.62]\, 50.5\, (7)^{3/2} = 4325$$

ASSUME $H_e = 6'$

$$3140 = 1.001\left[3.22 + 0.4\tfrac{6}{2}\right] 50.5\left[6^{3/2}\right] = 3284$$

4.39

ASSUME $H_e = 5.7'$

$$3140 = 1.001\left[\overset{4.36}{3.22 + 0.4\tfrac{5.7}{2}}\right] 50.5(5.7)^{3/2} = 2999$$

∴ SAY THAT THE PMF WILL RAISE THE POOL ELEVATION 5.85'

TO ELEV. + 1306.2 + 5.85 = +1312.05' OR +1312

THIS OVERTOPS THE DAM BY 0.85'

% OF PMF THAT CAN BE PASSED AT HIGH WATER IS:

FOR PMF, THE MAX. Q IS = 3140 ; THE MAXIMUM Q FOR WATER AT TOP OF DAM IS = 2385 cfs

$$\therefore \quad \frac{2385}{3140} \times 100 = 76\%$$

ASSUME THAT 2 FEET OF FLASHBOARD HAS BEEN ADDED TO THE SPILLWAY RAISING THE POOL ELEV. TO 1308.2

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EXCESS FLOOD STORAGE

ELEV.	H_e	VOL.	= $H_e(90) + \left[\frac{H_e^2(6)}{2} \times \frac{5280}{43560}\right]$
1308.2	0	0	
1309.2	1	91	$= 1(90) + \left(\frac{1^2(6)}{2} \times \frac{5280}{43560}\right)$
1310.2	2	183	$= 2(90) + \frac{2^2 6}{2} \times \frac{5280}{43560}$
1311.2	3	277	$= 3(90) + \frac{3^2 6}{2} \times \frac{5280}{43560}$

DISCHARGE THRU SPILLWAY

ASSUME SHARP CRESTED WEIR WITH $P = 4'$

ELEV.	H_e	Q	$= C L H_e^{3/2}$ $\quad C = 3.22 + 0.4\frac{H_e}{P}$
1308.2	0	0	
1309.2	1	168 cfs	$= (3.22 + 0.4\frac{1}{4})\, 50.5(1)^{3/2}$
1310.2	2	488 cfs	$= (3.22 + 0.4\frac{2}{4})\, 50.5(2)^{3/2}$
1311.2	3	924 cfs	$= (3.22 + 0.4\frac{3}{4})\, 50.5(3)^{3/2}$

ELEV.	Q cfs	Q/2 cfs	FLOOD STOR. ACRE-FT.	FLOOD STOR. cfs-hr.	S/ΔT 0.5 hr.	$SI = Q/2 + S/\Delta T$
1308.2	0	0	0	0	0	0
1309.2	168	84	91	1101	2202	2286
1310.2	488	244	183	2214	4428	4672
1311.2	924	462	277	3352	6704	7166

BY: PGM 8/7/78 JOB A7805-11 1

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SUBJECT HYDROLOGY - JACKSON SUMMIT SHEET 8 OF 13

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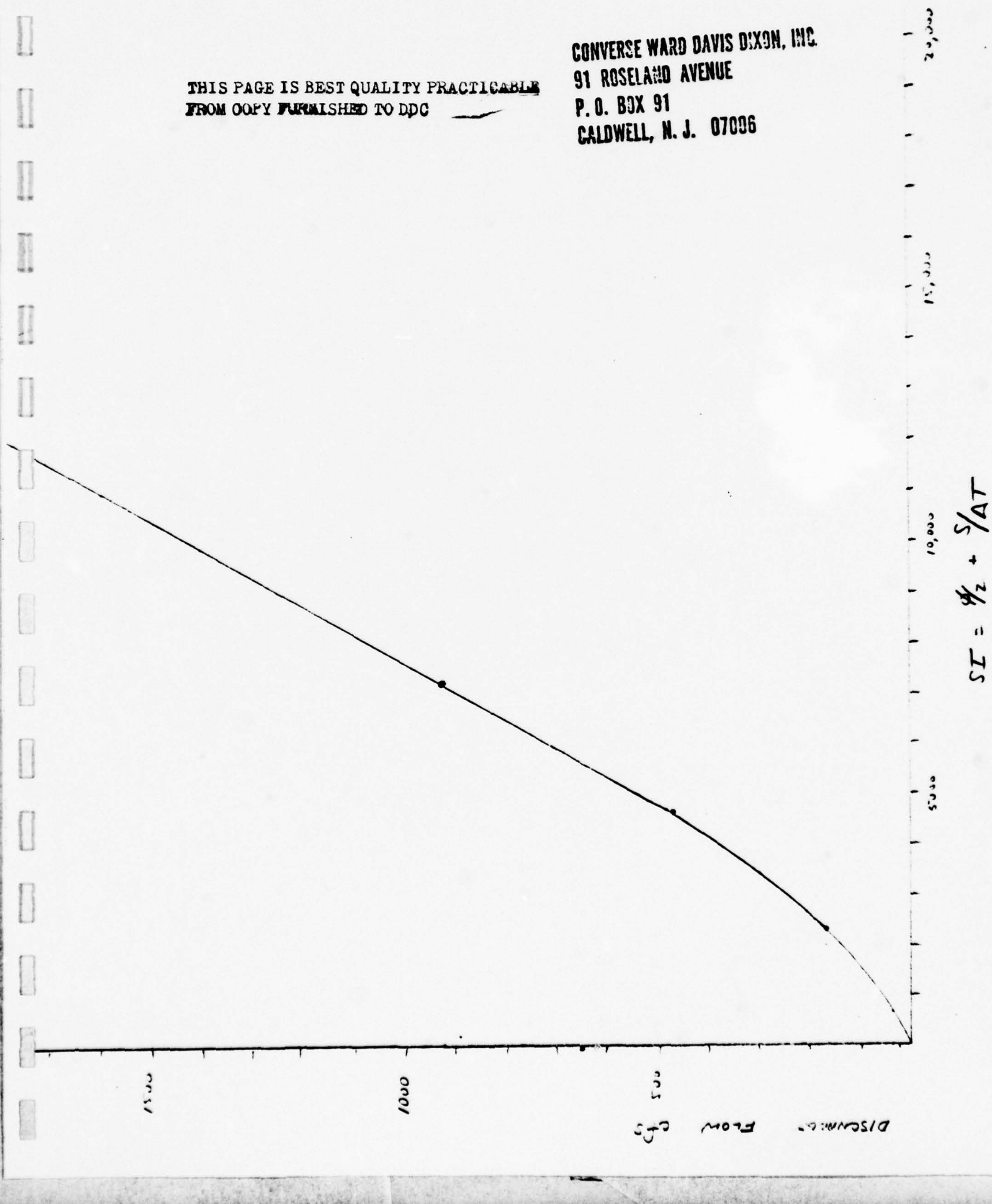

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SUBJECT: HYDROLOGY - FLOOD ROUTING
JACKSON SUMMIT STORAGE RESERVOIR

JOB A78CT-118

TIME	I	$\bar{I}$	ΣI_N	$\emptyset_N$
0	0	0	0	0
0.5	1300	650	650	35
1.0	2700	2000	2615	205
1.5	4100	3400	5810	690
2.0	5381	4740	9860	1400
2.5	4525	4953	13413	2025
3.0	3700	4112	15500	2390
3.5	2825	3262	16372	2540
4.0	2000	2412	16244	2525
4.5	1200	1600	15319	2360
5.0	350	775	13734	2080
5.5	0	175	11829	1740

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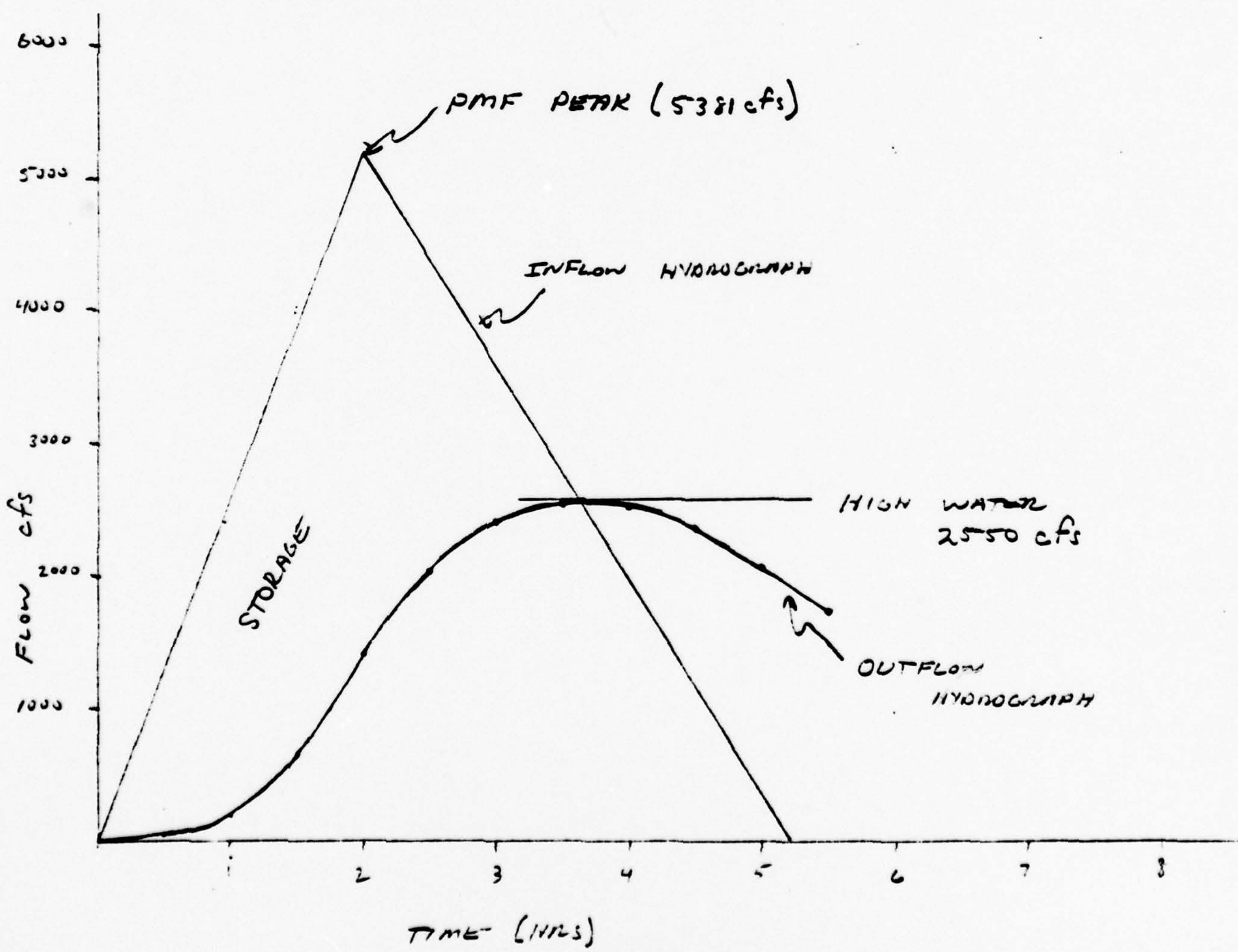

TO DETERMINE POOL ELEV. AT MAXIMUM Q (2550)

$$Q = C L H_e^{3/2}$$

$$= 3.22 + 0.4\left(\frac{H_e}{4}\right)(50.5) H_e^{3/2}$$

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ASSUME $H_e = 7'$

$$Q = 3.92(50.5)(7)^{3/2} = 3666 > 2550$$

FOR $H_e = 6'$

$$= 3.82(50.5)6^{3/2} = 2835 > 2550$$

$H_e = 5.5$

$$= 3.77(50.5)5.5^{3/2} = 2455 < 2550$$

SAY $H_e = 5.6'$

∴ PMF WILL RAISE THE POOL TO 1308.2' + 5.6' = 1313.8

OR IN OTHER WORDS THIS WILL OVERTOP THE DAM BY 2.6'

% PMF THAT CAN BE PASSED IS:

MAX. OUTFLOW WITH H_2O AT DAM CREST HIGH WATER $\frac{924}{2550} \times 100 = 36\%$

Probable Maximum Flood

In prior computations, page 1, the PMF was computed by comparison to Subbasin 47 = 564 square miles. This is much too large an area for comparison, since our drainage area is only five square miles. Thus, look at adjacent subbasins with smaller areas as follows:

Subbasin #	area	SPF	PMF	TP
44	118 sq mi	32,535 cfs	65,070 cfs	13.6 hrs
48	3 sq mi	2,102 cfs	4204 cfs	4.8

$$\left(\frac{A_1}{A_{44}}\right)^{.75} = \frac{PMF_1}{PMF_{44}} \quad \therefore PMF_1 = 65,070\left(\frac{5}{118}\right)^{.75} = 6,077 \text{ cfs}$$

$$\left(\frac{A_1}{A_{48}}\right)^{.75} = \frac{PMF_1}{PMF_{48}} \quad \therefore PMF_1 = 4,204\left(\frac{5}{3}\right)^{.75} = 6,164 \text{ cfs}$$

This is considered a reasonable check, so we will use Subbasin # 48.

Now determine T_P & T_B for Jackson Creek as a ratio of equivalent diameters

$$d_{48} = \sqrt{\frac{4A_{48}}{\pi}} = \sqrt{\frac{4\times 3}{\pi}} = 1.95 \text{ mi}$$

$$d_1 = \sqrt{4\times 5/\pi} = 2.52$$

$$T_{P1} = \frac{d_1}{d_{48}} \times TP_{48} = \frac{2.52}{1.95} \times 4.8 = 6.2 \text{ hrs} - \text{Round to 6 hrs}$$

$$T_{B1} = 2.67 \times 6.2 \text{ hrs} = 16.6 \text{ hours} - \text{Round to 16 hrs}$$

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BY GSS DATE 8-29-78

CHKD. BY J.K. DATE 9/5/78

SHEET NO. 12 OF 13

JOB NO. A7905-11 H

SUBJECT Flood Routing. Base is Subbasin # 48

NO FLASHBOARDS

Time	I cfs	$\bar{I}$ cfs	SI_N	ϕ_N	$SI_N - \phi_N + \bar{I}_{N+1} = SI_{N+1}$
0.0	0	0	0	0	0 - 0 + 257 = 257
0.5	514	257	257	20	257 - 20 + 771 = 1,008
1.0	1028	771	1008	70	1008 - 70 + 1285 = 2,223
1.5	1542	1,285	2,223	180	2223 - 180 + 1799 = 3,842
2.0	2056	1,799	3,842	380	3,842 - 380 + 2313 = 5,775
2.5	2570	2313	5,775	700	5,775 - 700 + 2827 = 7,902
3.0	3084	2,827	7,902	1,120	7,902 - 1,120 + 3341 = 10,123
3.5	3598	3,341	10,123	1,670	10,123 - 1,670 + 3855 = 12,308
4.0	4112	3,855	12,308	2,300	12,308 - 2300 + 4369 = 14,377
4.5	4626	4,369	14,377	2,970	14,377 - 2,970 + 4883 = 16,290
5.0	5140	4,883	16,290	3,600	16,290 - 3,600 + 5397 = 18,087
5.5	5654	5,397	18,087	4,190	18,087 - 4,190 + 5909 = 19,806
6.0	6164	5,909	19,806	4,900	19,806 - 4,900 + 6010 = 20,916
6.5	5856	6,010	20,916	5,250	20,916 - 5250 + 5702 = 21,368
7.0	5548	5,702	21,368	5450	21,368 - 5450 + 5394 = 21,312
7.5	5240	5,394	21,312	5400	21,312 - 5400 + 5086 = 20,998
8.0	4932	5,086	20,998	5300	
8.5	4624	4,778			
9.0	4316	4,470			
9.5	4008	4,162			
10.0	3700	3,854			

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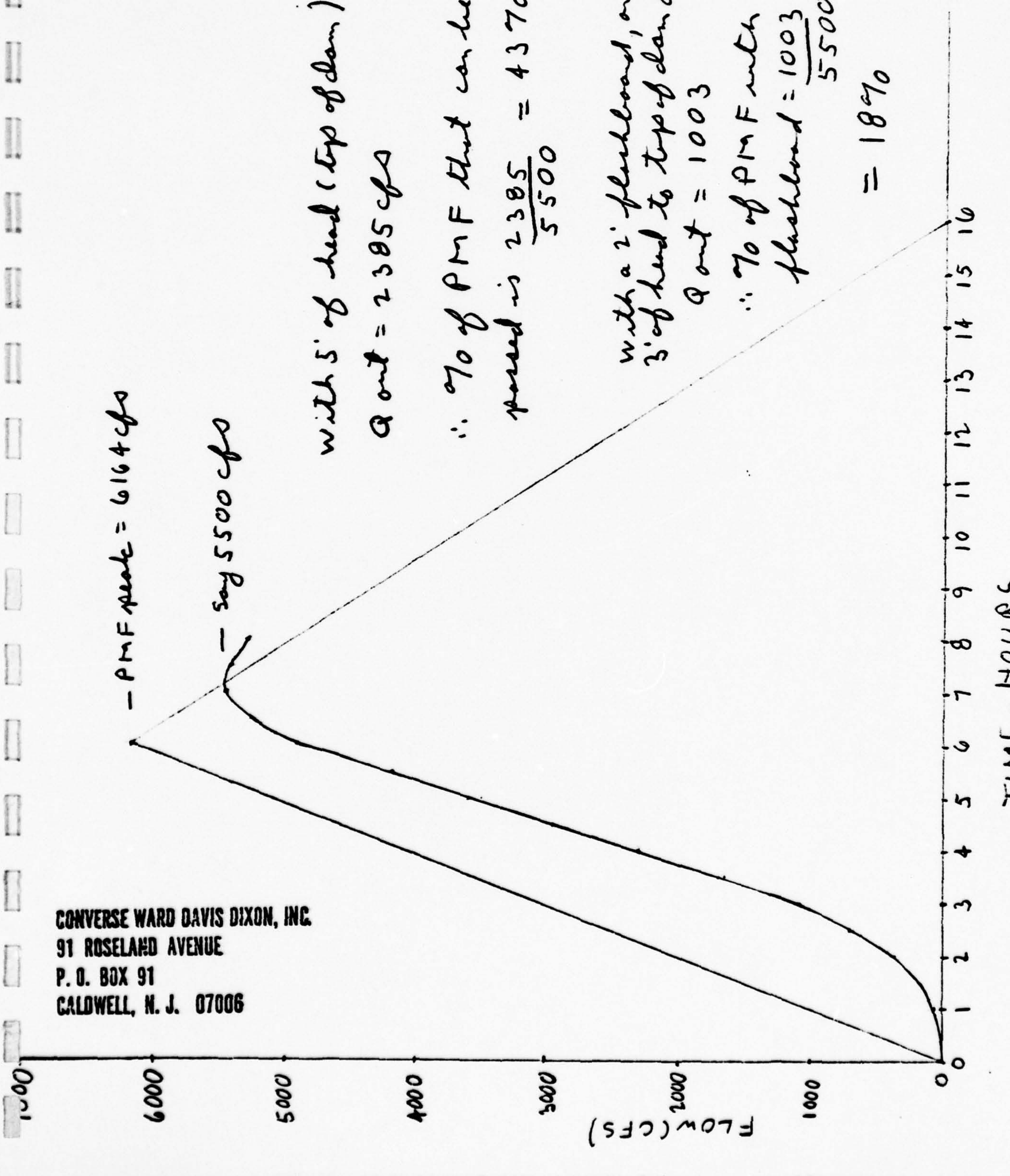
BY GSS DATE 8-29-78
CHKD. BY J.K. DATE 9/5/78
SUBJECT Flood Routing - no flashboards

JOB NO. A 7805-11 H



with 5' of head (top of dam),

$Q_{out} = 2385$ cfs

∴ % of PMF that can be passed is $\frac{2385}{5500} = 43\%$

with a 2' flashboard, only 3' of head to top of dam so

$Q_{out} = 1003$

∴ % of PMF with flashboard $= \frac{1003}{5500}$

$= 18\%$

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APPENDIX D

PHOTOGRAPHS

FIGURE 1   DIRT ACCESS ROAD (CAR PARKED ON JACKSON SUMMIT ROAD)

FIGURE 2   CREST OF DAM

FIGURE 3 LEFT WINGWALL OF SPILLWAY

FIGURE 4 SEEPAGE CHANNEL DOWNSTREAM OF TOE

FIGURE 5   SWAMPY AREA DOWNSTREAM OF TOE

FIGURE 6   16-INCH CORRUGATED PIPE UNDER JACKSON SUMMIT ROAD

FIGURE 7   SEEPAGE EMERGENCE

FIGURE 8   SEEPAGE EMERGENCE

FIGURE 9 SEEPAGE EMERGENCE

FIGURE 10 SEEPAGE EMERGENCE

FIGURE 11 UPSTREAM FACE RIGHT OF SPILLWAY

FIGURE 12 DISCHARGE OF 20-INCH DIAMETER OUTFLOW PIPE

FIGURE 13 RIGHT WINGWALL OF SPILLWAY

FIGURE 14 DOWNSTREAM FACE OF SPILLWAY SILL

FIGURE 15 SPILLWAY DISCHARGE CHANNEL LOOKING DOWNSTREAM

FIGURE 16 SPILLWAY DISCHARGE CHANNEL LOOKING UPSTREAM

FIGURE 17 RESERVOIR LOOKING UPSTREAM

FIGURE 18 DOWNSTREAM CHANNEL

FIGURE 19 JACKSON CREEK IN MAYFIELD, NEW YORK

FIGURE 20 JACKSON CREEK IN MAYFIELD, NEW YORK

APPENDIX E

RELATED DOCUMENTS

6-6-33-500 (11E-7431)

STATE OF NEW YORK

DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING

ALBANY

Received Sept. 26, 1933 Dam No. 172-976

Disposition Sept. 27, 1933. Watershed Upper Hudson

Foundation inspected

Structure inspected

Application for the Construction or Reconstruction of a Dam

Application is hereby made to the Superintendent of Public Works, Albany, N. Y., in compliance with the provisions of Section 948 of the Conservation Law (see last page of this application) for the approval of specifications and detailed drawings, marked Jackson Creek Reservoir for Gloversville Water Works herewith submitted for the {construction / ~~reconstruction~~} of a dam herein described. All provisions of law will be complied with in the erection of the proposed dam. It is intended to complete the work covered by the application about Feb 1 1934

(Date)

1. The dam will be on Jackson Creek flowing into Mayfield Creek in the town of Mayfield, County of Fulton and 2 1/2 mi. N.W. Village of Mayfield

(Give exact distance and direction from a well-known bridge, dam, village main cross-roads or mouth of a stream)

2. Location of dam is shown on the Gloversville quadrangle of the United States Geological Survey.

3. The name of the owner is City of Gloversville

4. The address of the owner is Gloversville N.Y.

5. The dam will be used for Water Supply

6. Will any part of the dam be built upon or its pond flood any State lands? NO

7. The watershed above the proposed dam is 5 square miles.

8. The proposed dam will create a pond area at the spillcrest elevation of 90 acres and will impound 47,000,000 cubic feet of water.

9. The maximum height of the proposed dam above the bed of the stream is 23 feet 0 inches.

10. The lowest part of the natural shore of the pond is 10 feet vertically above the spillcrest, and everywhere else the shore will be at least 100 feet above the spillcrest.

11. State if any damage to life or to any buildings, roads or other property could be caused by any possible failure of the proposed dam Two Small Wood Bridges

12. The natural material of the bed on which the proposed dam will rest is (clay, sand, gravel, boulders, granite, shale, slate, limestone, etc.) Sand with Boulders + some Gravel

13. Facing down stream, what is the nature of material composing the right bank? Sand & Gravel

14. Facing down stream, what is the nature of the material composing the left bank? Sand & Gravel

15. State the character of the bed and the banks in respect to the hardness, perviousness, water bearing, effect exposure to air and to water, uniformity, etc. Hard Sand somewhat Pervious

16. Are there any porous seams or fissures beneath the foundation of the proposed dam? Sand

17. **Wastes.** The spillway of the above proposed dam will be 50 feet long in the clear; the waters will be held at the right end by a Wing Wall the top of which will be 5 feet above the spillcrest, and have a top width of 1 1/2 feet; and at the left end by a Wing Wall the top of which will be 5 feet above the spillcrest, and have a top width of 1 1/2 feet.

18. The spillway is designed to safely discharge 250 cubic feet per second. pr. sq. mi.

19. Pipes, sluice gates, etc., for flood discharge will be provided through the dam as follows:

1- 20" C I Pipe Intake

1- " " " Mud Pipe

20. What is the maximum height of flash boards which will be used on this dam? None

21. **Apron.** Below the proposed dam there will be an apron built of Rein Concrete feet long across the stream, 50 feet wide and 1 1/2 feet thick.

22. Does this dam constitute any part of a public water supply? Yes

DER DAM INSPECTION REPORT

2	18	33	009176	102369	003	2
RB	CTY	YR AP.	DAM NO.	INS. DATE	USE	TYPE

AS BUILT INSPECTION

1 Location of Sp'way and outlet

1 Elevations

1 Size of Sp'way and Outlet

1 Geometry of Non-overflow section

1 GENERAL CONDITION OF NON-OVERFLOW SECTION

1 Settlement

1 Cracks

1 Deflections

1 Joints

1 Surface of Concrete

1 Leakage

1 Undermining

2 Settlement of Embankment

2 Crest of Dam

2 Downstream Slope

2 Upstream Slope

1 Toe of Slope

1 GENERAL COND. OF SP'WAY AND OUTLET WORKS

4 Auxiliary Spillway

1 Service or Concrete Sp'way

1 Stilling Basin

1 Joints

1 Surface of Concrete

1 Spillway Toe

1 Mechanical Equipment

4 Plunge Pool

1 Drain

1 Maintenance

1 Hazard Class

3 Evaluation

01 Inspector

COMMENTS:

PART I - INVENTORY OF DAMS IN THE UNITED STATES
(PURSUANT TO PUBLIC LAW 92-367)

See reverse side for instructions.

IDENTIFICATION	DIVISION (2)	STATE (3)	COUNTY (4)	CONGR DIST (5)	STATE (6)	COUNTY (7)	CONGR DIST (8)	NAME (9)	LATITUDE (North) (10)	LONGITUDE (West) (11)	REPORT DATE
		[illegible]	01	31				JACKSON CREEK	[illegible]	[illegible]	[illegible]

IDENTIFICATION (Continued)	POPULAR NAME (13)	NAME OF IMPOUNDMENT (14)
		JACKSON [illegible]

LOCATION	REGION (15)	BASIN (16)	RIVER OR STREAM (17)	NEAREST DOWNSTREAM CITY - TOWN - VILLAGE (18)	DIST FROM DAM (MI) (19)	POPULATION (20)
		[illegible]	JACKSON CREEK	JACKSON [illegible]	1	[illegible]

STATISTICS	TYPE OF DAM (21)	YEAR COMPLETED (22)	PURPOSES (23)	STRUCTURAL HEIGHT (ft) (24)	HYDRAULIC HEIGHT (ft) (25)	IMPOUNDING CAPACITIES MAXIMUM (acre-ft) (26)	IMPOUNDING CAPACITIES NORMAL (acre-ft) (27)	BLANK
		1931		23	20		10[illegible]	

REMARKS	REMARKS (28)
	[illegible] 20-CSTR [illegible] 5 2 [illegible] DSTRUCT [illegible]

ENG FORM 4474, 1 APR 75 ER 1110-2-106

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PART II – INVENTORY OF DAMS IN THE UNITED STATES
(PURSUANT TO PUBLIC LAW 92-367)

See reverse side for instructions.

FORM APPROVED
OMB NO. 49-S-7.5001

Reports Control Symbol
DAEN-CWE-17

STATE | IDENTITY NUMBER

STATISTICS

CREST LENGTH (ft)	SPILLWAY TYPE	SPILLWAY WIDTH (ft)	SPILLWAY MAXIMUM DISCHARGE (cfs)	VOLUME OF DAM (CY)	POWER CAPACITY INSTALLED (MW)	POWER CAPACITY PROPOSED (MW)	NAVIGATION LOCKS LENGTH (ft)	WIDTH (ft)	LENGTH (ft)	WIDTH (ft)	LENGTH (ft)	WIDTH (ft)	LENGTH (ft)	WIDTH (ft)	BLANK
[illegible]	C	50	250	425500											

MISC DATA

OWNER	ENGINEERING BY	CONSTRUCTION BY
[illegible] F [illegible] DEVILLE		

MISC DATA (Continued)

REGULATORY AGENCY

DESIGN	CONSTRUCTION	OPERATION	MAINTENANCE
E	VE	DLC	VEC

MISC DATA (Continued)

INSPECTION BY	INSPECTION DATE DAY	MO	YR	AUTHORITY FOR INSPECTION
E	23	OCT	6[illegible]	GEN STAT LAW SECT 15-[illegible]5[illegible]Z

REMARKS

REMARKS
[illegible] 72 [illegible] 17

ENG [illegible]

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